Congress of Neurological Surgeons
2007 Annual Meeting
San Diego, California • September 15-20, 2007

Navigating Change

Integrating Discovery and Innovation into Practice

Preliminary Program
Don’t miss the year’s most highly anticipated neurosurgical meeting. The 2007 CNS Annual Meeting is packed with engaging speakers, original science and novel educational formats designed to help you better assimilate the information presented into your practice. This year’s theme explores the dynamic field of neurosurgery to help attendees adapt their practice to technological advances, new medical challenges and changing societal demands.

Introducing Integrated Medical Learning℠ (IML) for the 2007 CNS Annual Meeting!

The Congress of Neurological Surgeons is advancing neurosurgery with the introduction of Integrated Medical Learning℠ (IML). The IML Sessions will be offered during the Monday, Tuesday and Wednesday General Scientific Sessions, with each session focusing on a different subspecialty area of neurosurgery.

Be a part of this dynamic and novel learning paradigm for the first time!

- You drive the agenda.
- Experts debate the issues of the day.
- Evidence competes with practice.
- Learners interact with teachers.
- Neurosurgery advances with your participation.

The IML Experience at the 2007 CNS Annual Meeting!

Before - Pre-meeting surveys will be sent out along with online resources pertaining to each of the three subspecialty topics. Survey results drive the session agenda.

During - Attendees will participate in daily IML Sessions via handheld interactive technology, allowing learners to interact with teachers.

After - A post-meeting online survey correlates new knowledge, attitudes and practice, and participants earn additional CME credit for taking part in all phases.
2007 CNS Annual Meeting Highlights

- Integrated Medical Learning℠ (IML)
  A new educational process designed to enhance individual learning experiences and advance the process of medical education.

- Neurosurgical Forum
  A concentrated neurosurgical symposium presenting the most compelling, novel and high impact clinical and basic science – New interactive format!

- Select Abstract Session
  Ask questions, talk through techniques and listen to poster presentations live – Now with opportunities to continue scientific discussions after the session electronically!

- CNS Resident Sans Challenge
  A game show-style competition for resident training programs.

- 3-D Live Cadaveric Demonstration of Surgical Approaches
  Neurosurgical masters demonstrate microsurgical principles live from our General Scientific Session stage.

- Digital Poster Center
  See hundreds of scientific posters in this state-of-the-art digital format – Now with opportunities for post-meeting electronic discussion!

- Eighteen new Practical Courses and Luncheon Seminars

- 25 Category 1 CME credit hours (and up to 22.5 optional Category 1 CME credit hours - including six possible credits for pre-meeting and post-meeting IML survey participation at no extra charge!)

The Congress of Neurological Surgeons exists to enhance health and improve lives worldwide through the advancement of education and scientific exchange.
DEAR COLLEAGUES:

It is with the deepest personal pride that I invite neurosurgeons across North America and the world, colleagues and friends, to the 57th Annual Meeting of the Congress of Neurological Surgeons in the wonderful city of San Diego, California. The meeting theme is Navigating Change: Integrating Discovery and Innovation into Practice, which acknowledges the rapid progress occurring within our specialty and our means to manage that change. We are fortunate to have a specialty filled with innovative and skilled surgeons and scientists working to discover effective approaches to improved patient care. The CNS motto is Education and Innovation. We have worked hard this year to foster the professional growth of our members worldwide, and to keep the organization responsive, relevant, and representative across the spectrum of a career.

The CNS has listened to its members through direct personal contact with leadership, via member-needs surveys, through Annual Meeting reviews, and during a Member Think-Tank meeting that took place this March. At the 2006 Chicago meeting, we began to transform education with the incorporation of interactive formats, utilizing new software platforms, the live CNS Neurosurgical Forum, the live 3-D-cadaveric demonstrations, and the CNS Resident SANS Challenge. This year we have expanded the interactive concept with a new bold program entitled Integrated Medical LearningSM (IML).

Created by the CNS, IML represents our efforts to transform the meeting experience from a several-day event to an expanded process. Beginning with a Scientific Program Committee that not only chooses relevant topics and speakers but asks relevant questions, members are surveyed regarding their knowledge regarding common neurosurgical problems, and their therapeutic interests and choices. This information is provided in advance to specially selected speakers who will address the thoughts of the membership in their interactive presentations. At the meeting, IML session attendees will use a web-enabled PDA not only to answer questions but to ask questions of the speakers. IML not only fosters interaction, but will lead to data collection suitable for publication and potential practice improvement. Our goal is to be able to track the value of education as it pertains to medical practice. We have selected three common clinical challenges for the morning IML sessions in San Diego.

The meeting will enable us to address critical topics that affect the practice of neurosurgery and our translation of neuroscience. The CNS tradition of special guest lecturers continues. On Monday, Professor Robert Sapolsky of Stanford University will speak on the concept of the “open mind.” Dr. Robert Ballard, the world’s foremost oceanographer, best known for tackling the most difficult challenges of the ocean, will speak on solving complex problems. The Apuzzo lecturer, Michael Tilson-Thomas, will speak on creativity from the perspective of music. Noted author, Jack El-Hai, will provide the Thompson lecture and speak on lessons from the first era of psychosurgery. On Thursday, a session based on managing growth and change will feature Dr. Steve Squyres, a principal scientist on the NASA Mars project. The 2007 Dandy Orator, Salman Rushdie, will speak on navigating change from the perspective of human culture.

In order to tackle the theme of Navigating Change, we assembled a team of incredible individuals across the breadth of our specialty. Annual Meeting Chairman, Tony Asher, Scientific Program Chairman, Rusty Rodts, and Scientific Program Vice-Chair, Nate Selden, led a creative and diverse group of volunteers who worked diligently to create an unparalleled program. Our Local Arrangements Chair, Michael Levy, has helped to showcase San Diego, one of America’s great and rapidly growing cities. The opening reception on Sunday, September 16, will be held on the flight deck of the aircraft carrier, USS Midway. On a warm September San Diego evening, this should prove to be one of the most memorable receptions ever.

The 57th CNS Annual Meeting is a joint meeting with the Japanese Congress of Neurological Surgeons. Our JCNS colleagues will enhance the scientific program in many ways. Please join me in welcoming our partners from across the Pacific and their President, Professor Teiji Tominaga.

The sun always shines in San Diego. Susan and I enthusiastically welcome you to the 2007 Annual Meeting.

Sincerely,

Douglas Kondziolka, MD, MSc, FRCSC, FACS
D r. Lawrence Dade Lunsford is the Lars Leksell Professor of Neurological Surgery at the University of Pittsburgh. He currently is co-director of the Center For Image-Guided Neurosurgery at the University of Pittsburgh Medical Center, and Director of the Residency Program. Dr. Lunsford’s primary scholarly and patient care interests have been related to the combination of imaging and brain surgery. This includes stereotactic surgery, stereotactic radiosurgery, and image-guided brain surgery. Dr. Lunsford established the first U.S. operating room to include a dedicated CT scanner in 1981. Since that time, more than 5,000 patients have undergone image guided brain surgery in this suite. In 1987, Dr. Lunsford was responsible for bringing the first 201-source Cobalt 60 gamma knife to the United States and to the University of Pittsburgh Medical Center, the first medical center to offer this state of the art, minimally invasive form of brain surgery. During the last 20 years of radiosurgery, more than 8,000 patients have had Gamma knife surgery at this center. He has pioneered clinical and research efforts in radiosurgery for vascular malformations, benign and malignant tumors and functional disorders. His clinical research into brain tumor malignancy has focused on innovative concepts such as stereotactic biopsy, brachytherapy, intracavitary irradiation, image-guided resections and stereotactic-guided endoscopy. His interest in trigeminal neuralgia management spans the field including microsurgical, percutaneous, and radiosurgery approaches.

A native of Roanoke, Virginia, Dr. Lunsford received his B.A. with high honors at the University of Virginia in 1970. He received his medical degree from the Columbia University College of Physicians and Surgeons in 1974. He completed his surgical internship at the University of Virginia Hospital, and his residency in neurological surgery at the University of Pittsburgh between 1975 and 1980. During that time, Dr. Peter J. Jannetta was the department chair. Dr. Lunsford then had a one year fellowship in stereotactic and functional neurosurgery and radiosurgery at the Karolinska Institute in Stockholm, Sweden. He studied with Professors Lars Leksell and Erik-Olof Backlund. Dr. Lunsford was the 1980 AANS Van Wagenen Fellow, which supported his work in Stockholm. Dr. Lunsford joined the Department of Neurological Surgery faculty in 1980, as Assistant Professor of Neurological Surgery. In 1985, he became Associate Professor and in 1990, full Professor of Neurological Surgery with secondary appointments in radiology and radiology. From 1995-1996 he served as Interim Chair of the Department of Neurological Surgery at the University of Pittsburgh. He then served as the Chair from 1997-2006.

Dr. Lunsford and his team also introduced the first B Unit gamma knife in the United States (1996), the first C Unit (1999), and the first 4-C unit (2004). Dr. Lunsford participated in the design team that helped to create the new Perfexion gamma knife unit. Dr. Lunsford has served on the Editorial Boards of more than six journals. He has authored or co-authored more than 400 peer-reviewed articles and more than 200 book chapters. In addition, he has served as editor or co-editor of six books. Dr. Lunsford was President of the UPMC Presbyterian Medical Staff from 1999 to 2001 and served as Chair of the Council of Clinical Chairs at the University of Pittsburgh School of Medicine from 2001 to 2003. He also serves as the neurosurgical consultant for the University of Pittsburgh Athletic teams. In the past, Dr. Lunsford has served on the boards of Children’s Home of Pittsburgh, the Pittsburgh Opera, the UPMC Tri-Century Insurance Company, and as Chairman of the Board of the UPMC Rehab Hospital. He is currently Chairman of the Medical Advisory Board of the International Radiosurgery Association (IRSA).

Dr. Lunsford has served as a regional, national and international lecturer during the last 25 years. Dr. Lunsford has been married to Julianne Michaelis Lunsford for 36 years, and has two children. His daughter, Stephanie, attended the University of Virginia, and is currently in law school. His son, Andrew, is a field service engineer responsible for high technology radiosurgical and radiation oncology systems. His memberships in professional organizations include the Congress of Neurological Surgeons, the Society of Neurological Surgeons, the American Association of Neurological Surgeons, the American Academy of Neurological Surgery, the American Society for Stereotactic and Functional Neurosurgery (of which he is a Past-President), and the International Stereotactic Radiosurgical Society, of which he was a founding member and first President. He is also a Fellow of the American College of Surgeons.

Dr. Lunsford’s personal interests include piano, opera, tennis, golf, and bird hunting. The greatest reward of a career in academic medicine is the opportunity to be involved in the education of the next generation of neurosurgeons from the U.S. and abroad.

Dr. Lunsford will give the following presentations:

**GENERAL SCIENTIFIC SESSIONS**
- **Monday, September 17, 10:35 - 10:55 am**
  - Navigating Change and the Acoustic Neuroma Story: Methods, Outcomes and Myths
- **Tuesday, September 18, 10:30 - 10:50 am**
  - Intraoperative Imaging: Evolution and Options
- **Wednesday, September 19, 8:50 - 9:10 am**
  - Role of Radiosurgery in the Management of AVMs
- **Thursday, September 20, 9:30 - 9:50 am**
  - Future of Innovation

**PRACTICAL COURSE**
- **Sunday, September 16, 1:00 - 5:00 pm**
  - Operative Colloquium: Masters of Neurological Surgery

**LUNCHEON SEMINAR**
- **Monday, September 17, 12:30 - 2:00 pm**
  - Resident/Honored Guest Luncheon

Register online at www.cns.org
As a boy in New York City, Robert M. Sapolsky dreamed of living inside the African dioramas in the Museum of Natural History. By the age of twenty-one, he made it to Africa and joined a troop of baboons. Although the life of a naturalist appealed to him because it was a chance to “get the hell out of Brooklyn,” he never really left people behind.

In fact, he chose to live with the baboons because they are perfect for learning about stress and stress-related diseases in humans. Like their human cousins, baboons live in large, complex social groups and have lots of time, Sapolsky writes, “to devote to being rotten to each other.” Just like stressed-out people, stressed-out baboons have high blood pressure, high cholesterol, and hardened arteries. And just like people, baboons are good material for stories. His gift for storytelling led The New York Times to suggest, “If you crossed Jane Goodall with a borscht-belt comedian, she might have written a book like A Primate’s Memoir,” Sapolsky’s account of his early years as a field biologist.

The uniqueness of Sapolsky’s perspective on the human condition comes from the ease with which he combines his insights from the field with his findings as a neuroscientist. For more than twenty-five years, Sapolsky has divided his time between field work with baboons and highly technical neurological research in the laboratory. As a result, he can effortlessly move from a discussion of pecking orders in primate societies (human and baboon) to an explanation of how neurotransmitters work during stress—and get laughs doing it.

The problem for people, as Dr. Sapolsky explains in his book Why Zebras Don’t Get Ulcers, is that our bodies’ stress response evolved to help us get out of short-term physical emergencies—if a lion is chasing you, you run. But such reactions, he points out, compromise long-term physical health in favor of immediate self-preservation. Unfortunately, when confronted with purely psychological stressors, such as troubleshooting the fax machine, modern humans turn on the same stress response. “If you turn it on for too long,” notes Sapolsky, “you get sick.” Sapolsky regards this sobering news with characteristic good humor, finding hope in “our own capacity to prevent some of these problems…in the small steps with which we live our everyday lives.”

The humor and humanity he brings to sometimes-sobering subject matter make Dr. Sapolsky a fascinating speaker. He lectures widely on topics as diverse as stress and stress-related diseases, baboons, the biology of our individuality, the biology of religious belief, the biology of memory, schizophrenia, depression, aggression, and Alzheimer’s disease.

Dr. Sapolsky is a MacArthur “Genius” Fellow, a professor of biology and neurology at Stanford University, and a research associate with the Institute of Primate Research at the National Museum of Kenya. In addition to A Primate’s Memoir, which won the 2001 Bay Area Book Reviewers Award in nonfiction, Sapolsky has written three other books, including The Trouble with Testosterone, Why Zebras Don’t Get Ulcers, and Monkeyluv and Other Essays on our Lives as Animals. His articles have appeared in publications such as Discover and The New Yorker.

Register online at www.cns.org
B
orn June 30, 1942, in Wichita, Kansas, Robert D. Ballard grew up in San Diego, California. He earned a PhD in marine geology and geophysics from the University of Rhode Island’s Graduate School of Oceanography, where he is currently a full-time faculty member. He spent 30 years at Woods Hole Oceanographic Institution (WHOI) in Massachusetts, where he spearheaded the development of manned submersibles and remotely operated vehicles for marine research.

Throughout his career Ballard has conducted more than one hundred deep-sea expeditions, using both manned and unmanned vehicles. Ballard participated in his first international expedition, Project FAMOUS (the French-American Mid-Ocean Undersea Study) in 1973. The first manned exploration of the Mid-Ocean Ridge, this expedition helped to confirm the newly emerging theory of Plate Tectonics and demonstrated technologies via the Immersion Project to engage in direct contact with his expedition team children to accompany him from afar on undersea explorations around the globe. In 2003, Ballard placed a memorial plaque on the deck of the stern in memory of those who lost their lives in the tragedy.

In 1982 Ballard organized the Deep Submergence Laboratory (DSL) at the Woods Hole Oceanographic Institute to begin developing the sophisticated remotely operated vehicle system known as Argo-Jason—a deep-towed vehicle carrying sensitive video cameras, which transmit broadcast-quality images to the surface through fiber-optic cable. Developed with support of the navy and tested in 1984, Ballard would use this system for his best-known expedition, the discovery of the RMS Titanic.

It was August 1985 when Ballard, as chief scientist, conducted a joint French-American expedition to find the Titanic. Using the newly tested Argo, Ballard began by searching for the debris field in an area just south of where Titanic’s lifeboats were found by the Carpathia. Ballard and his team conducted several sweeps of the ocean floor, finding no evidence of the wreck until the early morning hours of September 1, first seeing the Titanic’s massive boiler, then pieces of hull plating, portholes, and a razing turned on its side. Ballard returned to the site in July of 1986 and dove on the Titanic wreck in the manned submersible, Alvin with the small remote vehicle Jason Jr. deployed to investigate the interior areas. It was during this second visit to the Titanic that Ballard placed a memorial plaque on the deck of the stern in memory of those who lost their lives in the tragedy.

In 1989, Dr. Ballard created the JASON Project, an educational program designed to inspire in students a lifelong passion to pursue learning in science, math and technology through exploration and discovery. Ballard later developed telecommunication technologies to create "telee破门" for his JASON Project, which today allows hundreds of thousands of school children to accompany him from afar on undersea explorations around the globe. In 2003, he used satellite and Internet 2 technologies via the Immersion Project to bring thousands of students around the world into direct contact with his expedition team while on location in the Black Sea and Mediterranean Sea.

In the late 80s and into the 90s, Ballard turned his research toward the many warships lost during WWII, including the German warship Bismark and the giant Japanese Kirishima. In 1993 Ballard explored the Lusitania’s wreck site using the ROV Jason, confirming that the ship’s magazine remained intact and that the U-20’s torpedo penetrated a coal bunker, which ignited and exploded.

Ballard’s most recent discoveries include the Mediterranean Sea finds of sunken remains of ships along ancient trade routes, two ancient Phoenician ships off Israel, the oldest shipwrecks ever found in deep water, and four 1,500-year-old wooden ships—one almost perfectly preserved—in the Black Sea.

In 1997 Dr. Ballard founded the Institute for Exploration in Mystic, Connecticut, focusing his attention on the development of a suite of remotely operated vehicles, including the ROV HERCULES, created specifically to conduct deep water archaeological excavation to professional archaeological standards. Designed by a team of engineers, archaeologists and marine geologists, HERCULES uses sophisticated manipulation, optical, and acoustic sensors. The HERCULES ROV was successfully field tested in the Black Sea in 2003.

Dr. Ballard has 13 honorary degrees and 6 military awards; he served in the U.S. Navy Reserve as a commander for 30 years. In 1996, he received the National Geographic Society’s prestigious Hubbard Medal for "extraordinary accomplishments in coaxing secrets from the world’s oceans and engaging students in the wonder of science." In 2003, he received the National Humanities Medal from the National Endowment for the Humanities. He has published 18 books, numerous scientific papers and a dozen articles in National Geographic magazine. Ballard also has been featured in several National Geographic television programs, including the record-breaking Secrets of the Titanic. He is a National Geographic Society Explorer-in-Residence, a member of the NOAA Science Advisory Board, and serves as one of 16 Commissioners on the President’s Commission on Ocean Policy.

Register online at www.cns.org
Michael Tilson Thomas (MTT) assumed his post as the San Francisco Symphony’s (SFS) 11th Music Director in September 1995, consolidating a strong relationship with the Orchestra that began some two decades earlier. It was January of 1974 when he made his San Francisco Symphony conducting debut at the age of 29, leading the Orchestra in Mahler’s Symphony No. 9.

MTT’s grandparents, Boris and Bessie Thomashefsky, pioneers of the American Yiddish theater, have been praised by critics for innovative programming and for bringing the works of American composers to the fore, and have brought new audiences into Davies Symphony Hall. During his inaugural 1995-96 season, Tilson Thomas included an American work on nearly every one of his SFS programs, and ended the season with An American Festival, a groundbreaking two-week celebration of American music. In June 2005, MTT and the San Francisco Symphony again broke new musical ground with “Of Thee I Sing: Yiddish Theater, Broadway and the American Voice,” a two-week exploration of 20th century Jewish American music and its impact on the American theater. The festival included an evening celebrating MTT’s grandparents, Boris and Bessie Thomashefsky, pioneers of the American Yiddish theater.

Michael Tilson Thomas’s acclaimed recordings have won numerous international awards, including six Grammys for SFS recordings of Mahler’s symphonies 3 and 6, scenes from Prokofiev’s Romeo and Juliet, and a collection of three Stravinsky ballet scores - Le Sacre du printemps, The Firebird, and Perséphone. His and the SFS’s recording of Charles Ives, An American Journey, won Germany’s ECHO Klassik 2003 award for “Symphonic Recording of the Year.” For the San Francisco Symphony’s own SFS Media label, launched in 2001, Tilson Thomas and the Orchestra are in the midst of a project to record all of Gustav Mahler’s nine symphonies and the Adagio from the unfinished Tenth Symphony, as well as Mahler’s song cycles.

Acclaimed for his work as a composer, Tilson Thomas has given world premieres of many of his works with the San Francisco Symphony. In 1999, MTT conducted the SFS in the first orchestral version of Three Songs to Poems by Walt Whitman, sung by baritone Thomas Hampson, and in 2001, Renée Fleming and the SFS premiered his song cycle Poems of Emily Dickinson. In October 2002, Tilson Thomas led the SFS in the world premiere of his contrabassoon concerto Urban Legend, with SFS contrabassoonist Steven Braunstein as soloist. In January 2005, MTT and the SFS performed Tilson Thomas’s Island Music, a celebration of percussion dedicated to the memory of Lou Harrison. In 1991, Tilson Thomas and the New World Symphony were presented in a series of benefit concerts for UNICEF in the U.S. that featured Audrey Hepburn as narrator of From the Diary of Anne Frank, composed by Tilson Thomas and commissioned by UNICEF. This piece has since been translated and performed in many languages worldwide. In August 1995, he led the Pacific Music Festival Orchestra in the world premiere of his composition Shówa/Shóãh, written in commemoration of the 50th anniversary of the bombing of Hiroshima.

Noted for his commitment to music education, Tilson Thomas regularly leads the Orchestra in education concerts, which the San Francisco Symphony has been providing for its community since 1919. He led the television broadcasts of the New York Philharmonic’s famed Young People’s Concerts from 1971 to 1977, and in February of 1987 he founded the New World Symphony, a national training orchestra for the most gifted graduates of America’s conservatories, and continues to serve as its Artistic Director.

In fall 2006, Tilson Thomas and the SFS launched the national Keeping Score PBS television series and multimedia project. Keeping Score is the San Francisco Symphony’s five-year program designed to make classical music more accessible to people of all ages and musical backgrounds through television, the web, radio, DVDs, and in the classroom. Keeping Score is anchored by a national PBS television series which debuted in November 2006, an interactive web site to explore and learn about music, a national radio series hosted by MTT, documentary and live performance DVDs, and an education program for K-12 schools to further teaching through the arts by integrating classical music into core subjects.

Tilson Thomas’s many honors include Columbia University’s Ditson Award for services to American Music, The American Music Center’s Letter of Distinction, and the President’s Award from the National Academy of Recording Arts and Sciences. He was named 1995 Conductor of the Year by Musical America, and in 2005 was inducted into the Classical Music Hall of Fame. Tilson Thomas was a Carnegie Hall Perspectives Artist from 2003-2005, and in 2006 he was recognized with Gramophone’s Artist of the Year award, was elected to the American Academy of Arts and Sciences, and received an Honorary Doctorate from the University of San Francisco. Tilson Thomas is a Chevalier des Arts et des Lettres of France. Viva Voce, MTT’s volume of conversations with British critic Edward Seckerson, is published by Faber & Faber and was released in the U.S. in September 1995.
Second Annual John Thompson History of Medicine Lecturer

Jack El-Hai
Wednesday, September 19, 10:30 - 10:52 AM

Jack El-Hai is the author of The Lobotomist: A Maverick Medical Genius and His Tragic Quest to Rid the World of Mental Illness, which was published in 2005 (John Wiley & Sons). The Lobotomist has been reviewed and featured in media as diverse as The New York Times, The New York Review of Books, Discover Magazine, National Public Radio’s “Fresh Air” and “Talk of the Nation” programs, The Los Angeles Times, The New England Journal of Medicine, The Journal of the Royal Society of Medicine, and Nature/Neuroscience. The book also received the annual book award of the Medical Journalists’ Association of the United Kingdom and a Minnesota Book Award from the Minnesota Humanities Commission. The Lobotomist is being adapted as a television documentary in the PBS series The American Experience for broadcast during the 2008-09 season.

A freelance journalist who specializes in covering American history, Mr. El-Hai has contributed to The Atlantic Monthly, American Heritage, The History Channel Magazine, American Health, Utne, The Washington Post Magazine, and many other national publications. In 2002 he received the June Roth Memorial Award in Medical Journalism, and he previously won fellowships from the McKnight and Jerome foundations.

Mr. El-Hai, who earned a bachelor’s degree in English literature from Carleton College, teaches in the creative writing program of the University of Minnesota. He currently serves as president of the American Society of Journalists and Authors.

Special Lecturer

Paul R. Sanberg, PhD, DSc
Wednesday, September 19, 9:10 - 9:30 AM
Navigating Cellular Repair for the Nervous System

Dr. Paul R. Sanberg is Distinguished University Professor and Director of the Center of Excellence for Aging and Brain Repair and Vice Chair for Academic Affairs in the Department of Neurosurgery at the University Of South Florida College Of Medicine. Dr. Sanberg trained at York University, the University of British Columbia, the Australian National University and at the Johns Hopkins University School of Medicine. Dr. Sanberg has held academic positions at the Ohio University, the University of Cincinnati, and Brown University prior to his current position. His industry experience has included being Scientific Director for CytoTherapeutics, Inc., (Providence, Rhode Island), now Stem Cells, Inc., (Palo Alto, California) and was CSO and on the Board of Directors for Layton BioScience, Inc. (Atherton, California), and is currently Chairman and Founder of Saneron CCEL Therapeutics, Inc. (Tampa, Florida). The companies are involved in cell therapy for degenerative disorders. He has also been on the Board of Directors for Medical Advisory Systems, Inc. (AMEX: DOC), and on numerous Scientific Advisory Boards for Companies and Foundations. Most recently, he co-founded, Nutritherapeutics, Inc. in order to develop natural products to promote healing. Dr. Sanberg is Editor-in-Chief of Cell Transplantation, Executive Director of the American Society for Neural Transplantation and Repair, and past president of the Cell Transplant Society, and others. He is the author of more than 400 scientific articles and thirteen books including, Over the Counter Drugs: Harmless or Hazardous (Chelsea House Publishers, 1992), Neural Stem Cells: Methods and Protocols (Humana Press, 2002), and Neural Stem Cells for Brain and Spinal Cord Repair (Humana Press, 2003) and is an inventor on over twenty U.S. patents. His early work was pioneering in understanding the role of cell death in neurological disorders.
Salman Rushdie was born in Bombay (now Mumbai) in 1947. He went to school in Bombay and at King's College, Cambridge, where he joined the Cambridge Footlights theatre company. After graduating, he lived with his family who had moved to Pakistan in 1964, and worked briefly in television before returning to England, beginning work as a copywriter for an advertising agency. His first novel, *Grimus*, was published in 1975.

His second novel, the acclaimed *Midnight's Children*, was published in 1981 and won the Booker Prize for Fiction, the James Tait Black Memorial Prize (for fiction), an Arts Council Writers' Award and the English-Speaking Union Award, and in 1993 was judged to have been the 'Booker of Bookers', the best novel to have won the Booker Prize in the award's 25-year history. The novel narrates key events in the history of India through the story of pickle-factory worker Saleem Sinai, one of 1001 children born as India won independence from Britain in 1947. The critic Malcolm Bradbury acclaimed the novel's achievement in The Modern British Novel, “a new start for the late-twentieth-century novel.”

Rushdie's third novel, *Shame* (1983), which many critics saw as an allegory of the political situation in Pakistan, won the Prix du Meilleur Livre Etranger and was shortlisted for the Booker Prize for Fiction. The publication of his fourth novel in 1988, *The Satanic Verses*, lead to accusations of blasphemy against Islam and demonstrations by Islamist groups in India and Pakistan. The orthodox Iranian leadership issued a fatwa against Rushdie on February 14, 1989 - effectively a sentence of death - and he was forced into hiding under the protection of the British government and police. The book itself centers on the adventures of two Indian actors, Gibreel and Saladin, who fall to earth in Britain when their Air India jet explodes. It won the Whitbread Novel Award in 1988.

Rushdie continued to write and publish books, including a children's book, *Haroun and the Sea of Stories* (1990), a warning about the dangers of story-telling that won the Writers' Guild Award (Best Children's Book), and which he adapted for the stage (with Tim Supple and David Tushingham. It was first staged at the Royal National Theatre, London.) There followed a book of essays entitled *Imaginary Homelands: Essays and Criticism 1981-1991*; a book of short stories *East, West* (1994); and a novel, *The Moor's Last Sigh* (1995), the history of the wealthy Zogoiby family told through the story of Moraes Zogoiby, a young man from Bombay descended from Sultan Muhammad XI, the last Muslim ruler of Andalucia.


Rushdie is Honorary Professor in the Humanities at the Massachusetts Institute of Technology (MIT), and Fellow of the Royal Society of Literature. He was made Distinguished Fellow in Literature at the University of East Anglia in 1995. He was awarded the Austrian State Prize for European Literature in 1993 and the Aristeion Literary Prize in 1996, and has received eight honorary doctorates. He was elected to the Board of American PEN in 2002. The subjects in his new book, *Step Across This Line: Collected Non-fiction 1992-2002* (2002), range from popular culture and football to twentieth-century literature and politics. Rushdie is also co-author (with Tim Supple and Simon Reade) of the stage adaptation of *Midnight's Children* for the Royal Shakespeare Company.

His latest novel, *Shalimar The Clown*, recently received The Hutch Crossword Book Award. It is the story of Max Ophuls, his killer, and daughter, and a fourth character who links them all.
Steve Squyres, PhD, is Goldwin Smith Professor of Astronomy at Cornell University in Ithaca, New York, and is the principal investigator for the science payload on the Mars Exploration Rover (MER) Project.

Steve Squyres earned his PhD from Cornell in 1981, is a former student of the late Carl Sagan, and spent five years as a post-doctoral associate and research scientist at NASA’s Ames Research Center before returning to Cornell as a faculty member. His main areas of scientific interest have been Mars and the moons of the outer planets. Research for which he is best known includes study of the history and distribution of water on Mars and of the possible existence and habitability of a liquid water ocean on Europa.

Dr. Squyres has participated in many of NASA’s planetary exploration missions, including the Voyager mission to Jupiter and Saturn, the Magellan mission to Venus, and the Near Earth Asteroid Rendezvous mission. Along with his current work on MER, he is also a co-investigator on the 2003 Mars Express, 2005 Mars Reconnaissance Orbiter and 2009 Mars Surface Laboratory missions, member of the gamma-ray spectrometer flight investigation team for the Mars Odyssey mission, and a member of the imaging team for the Cassini mission to Saturn.

Buffeted by budgetary and technical problems, the rover missions received the green light only in 2000, giving the engineers and scientists just three years to get ready for a 2003 launch. A geologist designated as the lead scientist for the missions, Dr. Squyres had to negotiate with engineers to fit his stuff on their spacecraft, a fundamental challenge in the space-exploration business.

Steve Squyres has served as chair of the NASA Space Science Advisory Committee and as a member of the NASA Advisory Council. His awards include the American Astronomical Society’s Harold C. Urey Prize, the Space Science Award of the American Institute of Aeronautics and Astronautics, and the American Astronautical Society’s Carl Sagan Award. He was recently elected to membership in the American Academy of Arts and Sciences.


Dr. Squyres was featured as ABC News’s Person of the Week for January 9, 2004. It was noted by anchor Peter Jennings on World News Tonight that Steve Squyres “has gotten us all excited.”

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**Look for book signings with these select speakers throughout the 2007 CNS Annual Meeting.**

- Robert Sapolsky, PhD
- Robert D. Ballard, PhD
- Salman Rushdie
- Jack El-Hai

Register online at www.cns.org
2007 Annual Meeting Committee

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Scientific Program Vice-Chairman
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Nathan R. Selden
Gerald E. Rodts, Jr.
Robert M. Friedlander
Guy M. McKhann, II
Nicholas M. Boulis

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Nathan R. Selden, Co-Chairman
Ashwini D. Sharan, IT
Brian Hoh, IT

General Scientific Sessions Chairman
Daniel K. Resnick

General Scientific Session I
Frederick G. Barker
Michael A. Vogelbaum

General Scientific Session II
Charles Kuntz, IV
Michael W. Groff

General Scientific Session III
E. Sander Connolly, Jr.
Elad Levy

General Scientific Session IV
Russell R. Lonser
Leom E. Moores

Original Science Chairman
Nicholas M. Boulis

Abstract Chairman
Jaimie M. Henderson

Abstract Section Representatives

Section on Tumors
Howard L. Weiner
Michael A. Vogelbaum
Michael McDermott
Mark E. Shaffer

Section on Cerebrovascular Surgery
Erol Veznedaroglu
Elad Levy

Section on Pain
Oren Sager
Joshua M. Rosenow

Section on Pediatric Neurological Surgery
David Wrubel
Hugh Garton
Daniel J. Guillaume
Gerald Tuite

Section on Stereotactic and Functional Neurosurgery
Emad Eskandar
Kathryn L. Holloway

Section on Neurotrauma and Critical Care
Jamie Sue Ullman
Dilanatha Ellegala

Section on Disorders of the Spine and Peripheral Nerves
Christopher I. Shaffrey
Mark R. McLaughlin
R. John Hurlbert
Lynda Jun-San Yang
Michael W. Groff
Charles Kuntz, IV
Daniel K. Resnick
William C. Welch
Michael G. Kaiser
Laurence D. Rhines
Ehud Mendel
Praveen V. Mummaneni
Tanvir F. Choudhri
Bernard H. Giuot
Stephen Michael Russell

Socioeconomic/Legal/Council of State Neurosurgical Societies
Alan M. Scarrow
Mark E. Linskey
Mick J. Perez-Cruet
Deborah Benzel
William A. Bingham

Neurosurgical Forum Subcommittee
Jaimie M. Henderson, Chairman
Michael P. Steinmetz
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Ashwini D. Sharan
Mitesh V. Shah
Christopher I. Shaffrey

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Leon E. Moores

Consensus Sessions Chairman
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Luncheon Seminars Chairman
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Special Courses Chairman
Ali R. Rezai, Chairman
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Michael Shulder
Praveen V. Mummaneni
Mark D. Smith
R. John Hurlbert

Practical Courses Chairman
Lynda Jun-San Yang
Linda M. Liao
Michael Shulder
Praveen V. Mummaneni
Mark D. Smith
R. John Hurlbert

Spine IML Advisory Committee
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Frederick F. Lang
Susan Chang
Henny Brem
Jeffrey Bruce
Russell R. Lonser
Charles S. Cobbs
Steven N. Kalkanis
Andrew E. Sloan

Tumor IML Advisory Committee
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Frederick F. Lang
Susan Chang
Henny Brem
Jeffrey Bruce
Russell R. Lonser
Charles S. Cobbs
Steven N. Kalkanis
Andrew E. Sloan

Cerebrovascular IML Advisory Committee
Erol Veznedaroglu
E. Sander Connolly, Jr.
Douglas Kondziolka is proud to serve the Congress of Neurological Surgeons as its 57th President. He has served on the Executive Committee of the CNS in numerous roles over the past decade including Chair of the Fellowships and Publications Committees, Scientific Program Chair (2000), Annual Meeting Chair (2001), Treasurer (2002-2005), and Strategic Planning committee. He serves on the editorial board of numerous journals and is a principal editor for Neurosurgery. Prior to his term on the Executive Committee, he served on the registration and scientific program committees. In addition, he is a Past-President of the American Society for Stereotactic and Functional Neurosurgery, Past-Chairman of the Joint Section on Stereotactic and Functional Neurosurgery of the AANS/CNS, and Past-President of the International Stereotactic Radiosurgery Society.

He is the Peter J. Jannetta Professor of Neurological Surgery at the University of Pittsburgh. Dr. Kondziolka received his medical degree from the University of Toronto and graduated from the Toronto neurosurgery residency program in 1991 under the chairmanship of Drs. Alan Hudson and Charles Tator. From 1989 to 1991 at the University of Pittsburgh, he completed a Master of Science degree in the Department of Behavioral Neuroscience and a fellowship in stereotactic surgery and radiosurgery. His clinical practice is focused on neuro-oncology, functional neurosurgery, and stereotactic radiosurgery. Dr. Kondziolka serves as Vice-Chair for Education and Residency Program Coordinator. He has co-supervised the training of over 40 neurosurgical fellows, and directed numerous continuing medical education programs for practicing neurosurgeons and other specialists. He is most proud of the superb graduating residents of the University of Pittsburgh program and their impact on neurosurgery across the country.

He joined the faculty of the Department of Neurological Surgery at the University of Pittsburgh in January 1992. He is the neuroscience task force leader for the McGowan Institute for Regenerative Medicine. Since that time his laboratory has studied the radiobiological effects of radiosurgery on normal brain and brain tumor models, and has evaluated the effects of radiosurgery as a novel treatment for epilepsy. His work in stereotactic radiosurgery spans the breadth of that field including studies in cerebral vascular malformations, benign and malignant brain tumors, trigeminal neuralgia, epilepsy, and movement disorders. Dr. Kondziolka served as principal investigator of the first two clinical neurotransplantation trials for the care of patients with stroke.

Dr. Kondziolka has published 302 articles in refereed journals, 172 book chapters and/or invited publications, and has edited 8 books. He has completed four randomized controlled trials. He is a two-time recipient of the Stephen Mahaley Award for brain tumor clinical research from the Joint Section on Tumors of the AANS/CNS, and has received the Integra Foundation Award and Robert Florin Awards from the AANS. He received the Lars Leksell Award from the World Federation of Neurosurgical Societies. In 2004, he was honored as the Penfield Lecturer of the Canadian Neurosurgical Society. He serves on the medical staff of the Pittsburgh Penguins.

Susan and Doug Kondziolka met during his residency in Toronto where she worked as a neurosurgical operating room nurse. They have been married 17 years, and enjoy living in Pittsburgh with two great sons, Alex (15) and Max (13). They maintain their Canadian traditions at their summer home in Lake Muskoka, Ontario, and American traditions with great friends in Pittsburgh.
Dr. Tony Asher is honored to serve the Congress of Neurological Surgeons as Annual Meeting Chairman. Dr. Asher received his BA degree in Religion and Biology from Kalamazoo College in 1982. He graduated from Wayne State University Medical School in 1987 and while there was named to the original class of Howard Hughes Medical Institute-NIH Research Scholars. Dr. Asher returned to the NIH in 1989-91 as a staff fellow under Dr. Steven Rosenberg at the Surgery Branch of the National Cancer Institute. He completed his training in neurological surgery in 1995 under the chairmanship of Dr. Julian Hoff at the University of Michigan.

Dr. Asher joined the Charlotte-based Carolina Neurosurgery and Spine Associates in 1995, where he maintains a very active community-based practice with primary clinical interests in neuro-oncology and functional neurosurgery. He presently serves as the Director of Neurooncology at the Blumenthal Cancer Center of the Carolinas Medical Center, as Chairman of the Department of Neurosurgery at Presbyterian Hospital and as Adjunct Professor of Biology at the University of North Carolina, Charlotte (UNCC). Dr. Asher has previously served the Congress of Neurological Surgeons (CNS) as Vice President, Editor-in-Chief of SANS Wired, and as a member of the Strategic Planning, Scientific Program, Education and Information Technology Committees. He presently serves as President-Elect of the CNS and Chairman of the Strategic Planning Committee. He has also been a member of the Executive Committee of the Section on Tumors since 1998 and presently serves as Chairman of the Community Initiatives Subcommittee.

Dr. Asher’s basic research has focused on tumor immunobiology. He is currently involved in brain tumor clinical research, including establishing cooperative cancer research programs with laboratory scientists at UNCC. He presently serves as Co-Director of the Carolina Center for Translational Neuroscience and Co-Chairman of the Brain Tumor Foundation for the Carolinas. Dr. Asher has a special interest in promoting community involvement in clinical research and presently serves as an RTOG principal investigator and as a member of that organization’s brain tumor committee. He is the recent past chairman of the Central Nervous System Organ Site Committee of the American College of Surgeons Oncology Group. He is co-founder of the Academic-Community Brain Tumor Initiative.

Tony and Jill Asher were both born and raised in Michigan and met in Ann Arbor while Dr. Asher was a resident neurosurgeon. They have been married for 16 years. Jill previously worked as an ICU nurse at the University of Michigan and attained her DDS degree from that institution in 1995. Tony and Jill live in Charlotte with their three spirited children Tony (12), Kyle (10), and Dayna (7). The entire Asher family enjoys travel and a wide variety of outdoor sports including tennis, swimming, lacrosse and cycling.
Gerald E. (Rusty) Rodts, Jr., is honored to serve as the Scientific Program Chairman for the 2007 Annual Meeting. Dr. Rodts is Professor of Neurological Surgery and Orthopedic Surgery at Emory University, School of Medicine, where he has worked since 1994.

Dr. Rodts majored in Biology at Princeton University where he also received a certificate for Science in Human Affairs. He completed his medical degree at The College of Physicians and Surgeons of Columbia University in the City of New York. He thanks Bennett Stein, MD, Donald Quest, MD, Peter Carmel, MD, and others for stimulating his interest in neurosurgery. Dr. Rodts received his neurosurgery training at the University of California, Los Angeles under the tutelage of Donald Becker, MD, Ulrich Batzdorf, MD, Neal Martin, MD, Keith Black, MD, Duncan McBride, MD, John Frazee, MD and others. He is also grateful to the late Ed Dawson, MD, UCLA Professor of Orthopedic Surgery, for his teachings in spine surgery. Dr. Rodts completed a postgraduate fellowship in spine surgery under Regis Haid, MD at Emory University in Atlanta. He joined the Emory faculty that same year.

Dr. Rodts has held numerous volunteer and elected positions in the Congress of Neurological Surgeons. He has served as Vice-President, Secretary, Member-at-Large, Ex-Officio, Chairman of the Bylaws Committee, and Chairman of the CNS delegation to the CSNS. He has served numerous times on the Scientific Program Committee and Sergeant-at-Arms. In addition to his work with the CNS, Dr. Rodts has served as Chairman, Treasurer, Scientific Program Chairman, and Annual Meeting Chairman of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. He has served as the President of the Georgia Neurosurgical Society, and is a member of the Academy of Neurological Surgeons and the Society of Neurological Surgeons.

Dr. Rodts’s clinical and academic interests include degenerative pathology of the spine, rheumatoid arthritis, congenital abnormalities of the cervical spine and skull base, and minimally-invasive and computer-assisted image guidance of the spine. He has published numerous peer-reviewed articles and book chapters and has co-edited several textbooks and surgical atlases. He was an original founder and developer of the award winning educational website SpineUniverse.com. He is on the editorial board of The Journal of Spinal Disorders and Techniques, The Japanese Spine Journal, and he is a frequent reviewer for Neurosurgery.

Born in Wichita, Kansas, and having moved frequently during his youth around the Midwest and then Northeast, Dr. Rodts enjoys life in Atlanta with his wife Kelly and his three boys Teddy, Duncan and Brady. The Rodts family is avidly engaged in baseball, golf, soccer, football, skiing/snowboarding and surfing. Dr. Rodts is eternally grateful for guidance and support from his parents Jerry and Hennie Rodts of Tampa, Florida.

Michael L. Levy, attended Medical School at the University of California at San Francisco School of Medicine and completed his Internship and Residency at the University of Southern California School of Medicine, Department of Neurological Surgery. He completed a Fellowship in Pediatric Neurological Surgery at the Children’s Hospital of Los Angeles. He completed his Graduate work in the Department of Biophysics at the University of Southern California School of Medicine assessing the immunologic activity of dendritic cells following G protein inhibition. He currently is Head of the Division of Pediatric Neurosurgery at the Rady Children’s Hospital of San Diego and is the co-director of the Residency Training Program at the University of California San Diego, Division of Neurological Surgery. He is married (Karen Marie Levy) and has two children (Danielle and Dillon). He was a Member of the Executive Committee of the Congress of Neurological Surgeons from 1996-2002 and is a current Member of the Nominating Committee. He was the Associate Scientific Program Chairman at the CNS Annual Meeting at San Antonio in 2000.
Nurses and Physician’s Assistants Annual Meeting Highlights

The 2007 CNS Annual Meeting offers a number of special sessions and courses specifically aimed at helping nurses and physician’s assistants navigate the dynamic field of neurological surgery and improve patient care. Choose from these great offerings and more:

- **Practical Neurosurgical ICU Management:** The Basics (for MDs in Training, RNs, APRNs, and PAs).
  PC05 - Saturday, September 15, 1:00 - 5:00 pm. *See Page 29.*

- **Inpatient and Outpatient Management Dilemmas:** For Nurses, APRNs and Physician Assistants.
  PC12 - Sunday, September 16, 8:00 am - 5:00 pm. *See Page 31.*

- **Overview of Common Clinical Problems for Allied Health Providers in Neurosurgery.**
  T32 - Tuesday, September 18, 12:30 - 2:00 pm. *See Page 55.*

*Nurses and PAs also receive a discounted rate on all Luncheon Seminars.*
The CNS Welcomes the Association of Neurosurgical Physician Assistants

1st Annual ANSPA CME* Meeting

“Cutting Edge Neurosurgery: What to Take Home”
San Diego Marriott Hotel and Marina
Saturday, September 15, 2007
7:30 am - 5:45 pm

Preliminary Conference Topics

• Current and Future Trends in Cervical Disc Disease
• To Instrument or Not to Instrument – That Is (Still) the Question
• My Child Has a Headache! Care and Management of Pediatric Shunts
• KEYNOTE SPEAKER: Dr. Anthony L. Asher – Current Management of High-Grade Gliomas
• The Definitive Answer – To Clip or to Coil
• Navigating the Radiosurgery Maze
• The Present Future of Deep Brain Stimulation
• Acute Cervical Spine Injuries in the ER

6:00 - 8:00 pm Reception

Register Today via
MAIL: ANSPA CME, PMB 202, 4267 NW Federal Hwy, Jensen Beach, FL 34957
FAX: 772-388-3457
PHONE: 888-94-ANSPA
E-mail: theanspa@aol.com

*This program is not yet approved for CME credit. Conference organizers plan to request 8 hours of Category 1 CME credit from the PA Review Panel. Total number of approved hours not yet determined.
Dear Residents:

What an opportunity for all neurosurgical residents! Register for the 2007 Congress of Neurological Surgeons Annual Meeting today! The comprehensive Scientific Program and engaging invited speakers at this year’s meeting are sure to help residents navigate the dynamic field of neurosurgery. As an added bonus, CNS resident members receive reduced registration fees and complimentary housing (provided on a first-come, first-served basis). Do not let this opportunity pass you by...register today!

At the CNS Annual Meeting, you will find the latest information on current breakthroughs in research and treatment options, groundbreaking educational formats, and invaluable opportunities to develop relationships with other up and coming neurosurgical leaders.

I feel strongly that the Congress of Neurological Surgeons offers residents invaluable opportunities to cultivate their leadership skills and advance their developing careers, so I would like to take the opportunity to invite you to become a member. The application process is simple and can be an important part of your ongoing professional development. CNS Resident members are afforded a plethora of outstanding benefits (see this page for details) and we hope you will take full advantage of each one of them. Outstanding achievement in the field of neurosurgery begins with a strong foundation. That is why we are inviting you to join the Congress of Neurological Surgeons today!

If you have any questions or would like to apply for membership, please contact CNS Member Services toll free at 877-517-1CNS or via e-mail at info@1cns.org or visit our website www.cns.org for an on-line application.

On behalf of the Congress of Neurological Surgeons, I look forward to helping you succeed in the growing field of neurosurgery.

Sincerely,

Michael P. Steinmetz
Chair, Resident Committee

ExCLUSIVE RESIDENT MEMBER BENEFITS!

When neurosurgical residents need the most current information about breakthroughs in research and treatment options, continuing education opportunities and networking with peers, they turn to the CNS. CNS proudly offers its resident members exceptional benefits and the best educational opportunities.

In keeping with our dedication to neurosurgical education, the CNS continues to offer special programs to assist and encourage resident members to attend the Annual Meeting by providing:

- Reduced Annual Meeting registration fee.
- Complimentary housing* (Limited availability – apply now!).
- Complimentary ticket to Opening Reception.
- CNS funded Resident Award.
- Complimentary Residents/Honored Guest Luncheon (limited capacity – register early!)
- Reduced fees for Luncheon Seminars.
- Resident Recruitment Social.

For a one-time membership fee of $25, Resident Members are also entitled to the following benefits:
- Complimentary subscriptions to leading neurosurgical publications including:
  - NEUROSURGERY®, the official journal of the CNS – Includes Operative Neurosurgery the quarterly supplement
  - Clinical Neurosurgery
  - Congress Quarterly, the official CNS newsmagazine.
- Complimentary Access to the new CNS University of Neurosurgery.
- Eligibility for Educational CNS Fellowships Awards.
- Young Neurosurgeons’ Directory.
- SANS Lifelong Learning – only $150 for Residents!
- Online Job Placement Service.
- Outstanding Educational Resources via www.cns.org:
  - Core Curriculum in Neurological Surgery.
  - Image Library.
  - Resident Curriculum Guidelines for Neurosurgery.
- Access to the CNS Personal Assistant (CNS PA).

*If you are not currently a CNS Resident Member, your completed membership application must be received by July 2 for resident housing consideration.

Sergeant-at-Arms Program

What better way to become part of the Congress of Neurological Surgeons volunteer-based organization than to participate in the Sergeant-at-Arms Program!

The Sergeant-at-Arms volunteers contribute to the overall success of the Annual Meeting. Volunteer for these simple but vital organizational tasks and CNS will cover your fee for the course to which you are assigned!

Resident SANS Challenge

This game show-style competition for training programs is both fun and educational. The final two rounds will take place during the Annual Meeting. For a preview of the game and specific rules, please watch the CNS Resident Challenge website at http://sanschallenge.cns.org.

Register online at www.cns.org
Welcome to San Diego

Welcome to San Diego, where blue skies keep watch on 70 miles of pristine beaches and a gentle Mediterranean climate begs for a day of everything and nothing. bordered by Mexico, the Pacific Ocean, the Anza-Borrego Desert and the Laguna Mountains, San Diego county's 4,200 square miles offer immense options for relaxation and adventure.

Whether your idea of a restful afternoon involves lounging on a beach chair, teeing off at the legendary Torrey Pines golf course, or strolling through boutiques in the historic Gaslamp district, you’re sure to find your respite in San Diego. For those who prefer a little more action, San Diego’s 70 miles of Pacific Ocean coastline offer countless opportunities for outdoor recreation, such as surfing, boating, sailing and swimming. And the 600,000-acre Anza Borrego Desert State Park offers nature-conscious visitors endless opportunities to hike, camp, fish, observe wildlife, and much more.

From world-class dining to a spectacular array of museums, theaters and botanical gardens, San Diego is poised to curb any cultural craving. Spend the day at lush 1,200-acre Balboa Park, one of the nation’s largest cultural complexes and home to the largest concentration of museums west of the Mississippi. In San Diego’s North County, wine growers are making a mark by growing and harvesting quality grapes that become excellent wines, served at some of the most elegant restaurants and resorts in the region. To the south, it’s a whole different country, Mexico, featuring its own cultural offerings in various towns along the border and coastline, including Tijuana, Rosarito and Ensenada.

Being home to four theme parks, San Diego is also a great destination for families. See animals from around the globe at the San Diego Zoo, rub noses with an endangered rhino at the San Diego Zoo’s Wild Animal Park, or devote a day to counting the teeth on a shark at SeaWorld. To really set adventure (and the kids) free, visit LEGOLAND California, a vibrant interactive experience including kid-powered rides.

From thrilling ocean adventures to siestas under the shadow of a palm tree, San Diego truly offers something for everyone. Please join us for the 2007 CNS Annual Meeting and experience San Diego for yourself!
Accessibility
The San Diego Convention Center is accessible through all entrances. Inside, meeting rooms, exhibit halls and public areas are all served by conveniently located elevators. Telephones, drinking fountains and restrooms located throughout the facility are also wheelchair accessible.

Scooter and wheelchair rentals are available by contacting Scootaround Inc. at their toll-free hotline: 888-441-7575. You can also submit a rental inquiry on the web at www.scootaround.com or by fax at 204-478-1172.

Air Travel Information
Take advantage of one-stop shopping for all your air travel, registration and housing needs. See page 22 for details.

Americans with Disabilities Act
Please let us know if, under the Americans with Disabilities Act, you may require special accommodations or services in order to attend the 2007 CNS Annual Meeting. We want to ensure that no individual with a disability is excluded because of the absence of auxiliary aids and services.

Auxiliary Tours, Optional Evening Events and CNS Social Activities
Auxiliary Tours are optional activities and programs available to spouses and guests. Physicians and Allied Health Professionals may not register for these activities and programs because they run simultaneously with our Scientific Program. These activities and programs are selected to provide an opportunity to explore the more interesting attractions in the San Diego area.

All tours will depart from the CNS headquarters hotel, the San Diego Marriott. Please arrive 15 minutes prior to the scheduled departure time.

All registered CNS Annual Meeting spouses and guests are invited to use the CNS Spouse Hospitality Suite, Monday through Wednesday, including daily continental breakfast from 7:00 - 10:30 am. Please note that admittance to the CNS Spouse Hospitality Suite is by Spouse/Guest or Nurse/Spouse badge only. The CNS Spouse Hospitality Suite is located at the San Diego Marriott Hotel.

Optional Evening Events are available to all registered attendees and our exhibit partners. Complete details and fees for all planned Optional Activities can be found on pages 73 - 79. We encourage you to share this information with your spouse or guest for their convenience when registering for the week’s extensive programming.

CNS Social Activities are also open to all registered attendees and are included with each registration. The Opening Reception on Sunday, September 16 is open to all registered attendees and one complimentary ticket is included with each registration. See page 35 for more details.

Children
Children over the age of 12 may register as a guest at the Guest Registration fee. This will allow full participation in Auxiliary Program activities. Please note that children under the age of 18 are not allowed in the Exhibit Hall.

Should you desire babysitting services, please contact the concierge desk at your hotel.

CNS has no control over and assumes no responsibility for the care that is provided through hotels.

Climate
San Diego enjoys beautiful weather year round with an average daily temperature of 70.5º (21.4 degrees Celsius). A marked feature of the climate is the wide variation in temperature within short distances due to the topography of the land. You can enjoy coastal, mountain and desert environments all in the space of one day.

CME Accreditation
The Congress of Neurological Surgeons is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians.

The CNS designates this continuing medical activity for a maximum of 25 credit hours in category 1 credit toward the American Medical Association’s Physician’s Recognition Award. An additional 16.5 hours of credit may be earned by attending optional educational programs such as Practical Courses and Luncheon Seminars. An additional 6 hours (at no extra charge) can be earned by participating in the IML pre-meeting and post-meeting surveys. Each physician should claim only those hours of credit that he/she actually spent in the educational activity. A CME Tracking Form will be enclosed in your registration packet and will be posted online at www.cns.org after the 2007 CNS Annual Meeting.

Presenters of scientific posters can claim up to 10 category 2 credits for designing a poster and can also claim 1 category 2 credit for teaching; attendees can claim 1 category 2 credit for each hour spent viewing posters.

The same number of category 1 credits awarded will be applied toward the Continuing Education Award in Neurosurgery.

CNS cannot designate its Annual Meeting as meeting the criteria for credit for nurses and other allied health professionals. For credit that may be acceptable to state medical associations, specialty societies, or state boards for medical licensure, please contact those organizations directly.

Certificates are mailed approximately six weeks after the meeting. Online CME Certificates will be available to CNS Members on the CNS PA at www.cns.org in November 2007.
Course Agendas and Faculty
Agendas are occasionally subject to change. As we continue to strive to improve the quality of your educational experience, CNS may substitute faculty with comparable expertise where necessary.

Disclosures
Before the program, all speakers will disclose the existence of any financial interest and/or other relationship they might have with the manufacturer(s) of any commercial product(s) to be discussed during their presentation. It is also each speaker’s responsibility to include the FDA clearance status of any device or drug requiring FDA approval discussed or described in their presentation or to describe the lack of FDA clearance for any “off label” uses discussed. Speakers from the audience are also required, therefore, to indicate any relevant personal/professional relationships as they discuss a given topic.

Handout materials are prepared and submitted for distribution by the presenters who are solely responsible for their content.

Disclosures will be published in the Scientific Program Book that will be distributed at the Annual Meeting.

E-mail Cafés
You will be able to check your e-mail messages from the E-mail Cafés in the CNS Member Services Center (Booth #725 in the Exhibition Hall). Please be sure to have your e-mail account username, password and the mail server address or URL.

Exhibition
The CNS Exhibit Halls will be located in Hall EFG of the San Diego Convention Center.

Hours are:
- Monday, September 17: 9:00 am - 4:30 pm
- Tuesday, September 18: 9:00 am - 4:30 pm
- Wednesday, September 19: 9:00 am - 4:00 pm

Admittance to the Exhibit Hall is by CNS name badge only. Please note that children under the age of 18 are not allowed in the CNS Exhibit Hall.

Evaluations
The evaluation process is a key component in our continuous strive for excellence in neurosurgical education. Feedback from registrants helps to determine programming at future Annual Meetings. As a result of your input, our programming will continue to improve. Please complete your evaluation forms and deposit them in the drop boxes located throughout the San Diego Convention Center. The Congress of Neurological Surgeons is dedicated to neurosurgical education . . . your opinions are important to us!

Future Meetings
- Orlando, FL: September 20 - 25, 2008
- New Orleans, LA: October 24 - 29, 2009
- San Francisco, CA: October 23 - 28, 2010
- Washington, DC: October 1 - 6, 2011

Housing Information
See pages 22 - 23.

Member Services Center - Booth 725
Designed to increase the visibility of the CNS Secretary, the CNS Membership Department and Neurosurgery®, the CNS Member Services Center is located in Exhibit Hall EFG, Booth #725. Staff members will be available to assist you and answer any questions you may have about CNS and its member services. You can also check your e-mail at the E-mail Cafés.

Press Room
Press activities will take place at the San Diego Convention Center. Please stop by the Registration area for details.

Registration Information
Registration Hours:
- Saturday, September 15: 7:00 am - 5:30 pm
- Sunday, September 16: 7:00 am - 5:30 pm
- Monday, September 17: 6:30 am - 5:30 pm
- Tuesday, September 18: 6:30 am - 5:30 pm
- Wednesday, September 19: 6:30 am - 5:00 pm
- Thursday, September 20: 7:00 - 11:00 am

For additional information see page 21.

Shuttle Services
Shuttle services will be available to all official CNS hotels with the exception of the San Diego Marriott. A shuttle schedule will be posted at the hotels and at the Convention Center and will be printed in the Scientific Program Book. Shuttle hours are as follows:
- Saturday, September 15: 7:00 am - 5:30 pm
- Sunday, September 16: 7:00 am - 5:30 pm
- Monday, September 17: 6:00 am - 6:00 pm
- Tuesday, September 18: 6:00 am - 6:30 pm
- Wednesday, September 19: 6:00 am - 6:00 pm
- Thursday, September 20: 6:00 am - 12:00 pm

Shuttles will also be available from official hotels to the CNS Opening Reception on Sunday, September 16, from 6:15 to 8:30 pm.
GENERAL INFORMATION

Speaker Ready Room
The Speaker Ready Room will be available Saturday, September 15 through Wednesday, September 19, from 6:30 am - 6:00 pm and Thursday, September 20 from 6:30 am - Noon at the San Diego Convention Center. All speakers and abstract presenters should visit the Speaker Ready Room prior to their presentations.

Smoking
The Convention Center is a non-smoking facility. By state law, and in the interest of public health, the San Diego Convention Center has adopted a non-smoking policy. There are designated areas outside the building where smoking is permitted.

Transportation Information from San Diego International Airport
If you are arriving by plane or train, the San Diego Convention Center is conveniently located 3 miles from San Diego International Airport and less than one mile from the Amtrak Station. The San Diego Trolley has two stops directly in front of the Center at Harbor Drive/First Avenue and Harbor Drive/Fifth Avenue.

Who Should Attend
Neurological surgeons, neurosurgery nurses, physician assistants, orthopedic surgeons, primary care physicians, gerontologists, radiologists, hospital administrators, oncologists, neurologists, pediatricians, physiatrists, and infectious disease specialists are welcome and encouraged to attend the 2007 CNS Annual Meeting.

Must See San Diego

Extend your stay in sunny San Diego to catch these and many other great sites and experiences:

- Stroll through Balboa Park and enjoy its 15 museums and spectacular gardens.
- Bike or jog along Mission Bay Park’s more than 20 miles of scenic trails.
- Visit Shamu the Killer Whale at SeaWorld San Diego.
- Experience the natural beauty of the desert at the Anza-Borrego Desert State Park.
- Wander through Old Town’s historic buildings, including the blacksmith shop, Seeley Stables and the oldest schoolhouse in San Diego.
- Catch a wave in the San Diego Surf.
- Check out the Giant Panda Research Station at the San Diego Zoo.
- Embark on a Caravan or Balloon Safari at the San Diego Zoo’s Wild Animal Park.
- Watch the magnificent sunset over the ocean at La Jolla Cove.
The CNS, in conjunction with Laser Registration, offers you one-stop services for all your hotel, registration, and air travel needs.

For your convenience, you can register for courses, select your flights, reserve your hotel room and more via these four methods:

**Online:** www.cns.org
- Internet booking is available 24 hours a day, seven days a week
- Credit card only
- Not available for Residents or Fellows
- Receive *immediate confirmation* of Registration Confirmation Notification

**Fax:** 866 654 4048 U.S. & Canada
- 514 380 9363 International
- Credit card only
- Allow *seven business days* for Registration Confirmation Notification

**Phone:** 866 654 4047 U.S. & Canada
- 514 380 9362 International
- Credit card only
- Not available for Residents or Fellows
- Not available for Ticketed Events
- Allow *two business days* for Registration Confirmation Notification

**Mail:** CNS Annual Meeting/Laser Registration
- c/o Laser Registration
- 1200 G Street NW, Suite 800
- Washington, DC 20005-3967
- Credit card or check (no wire transfers)
- Allow *two business days* for Registration Confirmation Notification

**Important Dates to Remember**

- **August 15, 2007**
  Advance Registration Discount and Housing Deadline

- **August 22, 2007 Cancellation Deadline**
  $100 Processing fee will be charged for written cancellation requests received during this time. No refunds given after August 22, 2007.

- **August 22, 2007**
  Course and event tickets will be refunded in full until this date. No refunds after this date.

- **August 16 - 24, 2007**
  Contact Laser Registration for any Housing questions.

- **August 27, 2007**
  Any changes to hotel reservations must be made directly with hotel from this date on.

**Fax & Mail**
- Type or print all information on the registration/housing form in black ink. Do not use a cover sheet.
- CNS/Laser Registration is not responsible for faxes not received due to mechanical failure or circumstances beyond our control.
- Due to the high volume of forms received, Laser Registration cannot confirm receipt of faxed or mailed forms.

**Phone**
- Have your completed registration/housing form and credit card information in front of you when placing your call.

**Credit Card Payments**
- Visa MasterCard American Express

**Payment by Check**
- Checks must be drawn on a U.S. bank in U.S. dollars. Make checks payable to: CNS Annual Meeting/Laser Registration
- Include $250 per unit hotel deposit plus appropriate fees for registration and any optional items purchased.
- Checks will be processed electronically. If you do not want your check processed electronically, please select another method of payment.
Contact Laser Registration, the official CNS Housing and Registration Service, to reserve your guest rooms. Hotels will not accept reservations from CNS meeting attendees directly.

Reservations can be made online or via fax, phone or mail – See page 21.

Be sure to complete the entire housing section of the registration form.

Hotel Reservation Information and Deadlines

Hotel reservations are only available to registered CNS attendees. You must first register for the CNS Annual Meeting before making your hotel arrangements – see page 24.

Don't wait. Rooms are limited and fill up quickly.

Reserve your room by August 15, 2007.

Deposits

A deposit is required and due at the time your hotel reservation is made.

This payment must be submitted with your registration fees. Credit cards will be charged immediately.

A small portion of your room rate will be used to help defray the cost of registration and housing services.

Deposit: Standard Room = $250.

All rooms are subject to applicable tax, currently at 10.5% for hotel tax.

Hotel Confirmations, Cancellations or Changes

Note: When canceling a reservation by phone, record the date, cancellation number, and name of the Laser Registration representative accepting the cancellation.

Through August 15, 2007, 5:00 pm CST

• All changes and cancellations must be made through Laser Registration.
• Rooms are not transferable.
• Refunds for deposits will be issued by Laser Registration.

Between August 16 and August 24, 2007

• Contact Laser Registration for any Housing questions.

Beginning August 27, 2007

• All changes and cancellations must be made directly with the hotel.

• If cancellation notice is not received according to the hotel policy, the deposit may be forfeited.
• Check your hotel confirmation and contact the hotel directly for information.

Complimentary Housing for CNS Resident Member Attendees

Complimentary housing at the CNS Annual Meeting is available to CNS Resident Members on a first-come, first-served basis.

To be considered for this program, CNS Resident Members must:

• Complete a separate CNS Resident Housing Form (Included with Resident Member registration materials). This form is to be send directly to CNS via fax to 847 240 0804 or mail to 10 N. Martingale Road, Suite 190, Schaumburg, IL 60173-2294.
• Register for the CNS Annual Meeting by August 8, 2007.
• Become a member by July 2, 2007.

NOTE: All Resident attendees must register and make housing arrangements via fax or mail. Online and phone registration is not permitted.

Air Travel

The Congress of Neurological Surgeons has secured a special discount agreement with United Airlines. The discount is offered exclusively to CNS Annual Meeting attendees and is not available to the general public.

Choose Your Savings & Book Early

Save off the lowest available fare by calling United at 1-800-521-4041 – refer to Meeting ID #565ZR.

Additional savings are available when tickets are purchased 7 days in advance or 30 days in advance.

Discounts apply on United, United Express, Ted, and code share flights operated by US Airways, US Airways Express and Air Canada.

Reservations are accepted through: United MeetingsPlus reservation service from 8:00 am - 10:00 pm EST, Monday - Friday and 8:00 am - 8:00 pm EST, Saturday and Sunday; Laser Registration – The CNS Housing, Registration, and Travel Service at 866 654 4047 or 514 380 9362, online at www.united.com, or through your travel agent.

Mileage Plus members receive full credit for all miles flown to this meeting.
Manchester Grand Hyatt San Diego
1 Market Place

The Manchester Grand Hyatt has an ideal waterfront location next to the Convention Center, Seaport Village and the Gaslamp Quarter. The luxurious appointed guest rooms include, bay views and Portico bath amenities and available high speed internet access. The hotel offers concierge services, an outdoor pool with sundeck, tennis courts, spa services and a fitness center.

- Fitness Center.
- Swimming Pools (2).
- Room Service.
- High-speed Internet Access.
- 4 Restaurants.
- Salon and day spa.
- Tennis courts (4).

San Diego Marriott Hotel & Marina
333 West Harbor Drive

The San Diego Marriott is the official CNS Headquarter Hotel

The San Diego Marriott offers a spectacular waterfront setting conveniently located adjacent to the convention center and the Gaslamp Quarter and affords effortless access to the city’s most popular sights. This resort-style hotel offers spacious guest rooms in two 25-story towers with awe-inspiring views of the downtown skyline and the San Diego Bay. The Marriott also offers luxurious bedding, concierge services, high-speed Internet access and cable TV, restaurants and lounges, a fitness center, two pools and a heated whirlpool.

- Fitness Center.
- Heated Pools (2).
- Room Service.
- High-speed Internet Access.
- 4 Restaurants.

Hilton Gaslamp Quarter
401 K Street

Located in the heart of the historic Gaslamp Quarter, The Hilton San Diego Gaslamp Quarter hotel in San Diego, California is surrounded by shopping, theater, art galleries and more than 100 restaurants and night clubs. Across the street from the San Diego Convention Center, two blocks from Petco Park, and three miles from San Diego International Airport, the Hilton hotel is an urban retreat in the midst of a booming downtown San Diego, California scene. Here you will find a sophisticated hotel that mixes modern design with attentive service and impressive amenities.

- Fitness Center.
- Swimming Pool.
- Room Service.
- High-speed Internet Access.
- Restaurant.
- Spa.

Thank You for Your Continued Support of the CNS

The CNS thanks you for your support in reserving your guest room through the official CNS Housing, Registration, and Travel Service/Laser Registration. The CNS, in negotiating contracts with convention centers and hotels, must commit to a minimum number of guest rooms. This commitment helps guarantee the availability of meeting space and helps control of the cost of the meeting. When the CNS fails to anticipate the number of attendees reserving rooms through our housing block, we are held liable for contracted rooms that go unoccupied. This financial penalty may then impact future member services and programs. A history of high utilization of our room block enables CNS to negotiate better room rates for future meetings.

Hotel Room Rates:

<table>
<thead>
<tr>
<th>Hotel</th>
<th>Single</th>
<th>Double</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Diego Marriott</td>
<td>$269</td>
<td>$269</td>
</tr>
<tr>
<td>(Headquarters)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cityview</td>
<td>$289</td>
<td>$289</td>
</tr>
<tr>
<td>Bayview</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manchester Grand Hyatt</td>
<td>$258</td>
<td>$258</td>
</tr>
<tr>
<td>Hilton Gaslamp Quarter</td>
<td>$269</td>
<td>$269</td>
</tr>
</tbody>
</table>

All rates are subject to 10.5% occupancy tax plus $0.13 California Tourism Tax per room night.

A small portion of your room rate will be used to help defray the cost of housing and registration services.
B1-B2
Advanced Registration and Housing Form

PRINT or TYPE your personal information. Your name and address, as entered here, will be used on your CME certificate, if applicable. Please include phone, fax, and e-mail. If international, please include country code for phone and fax.

PRINT or TYPE any spouse, guest or children’s badge information.

Hotel Reservations: Indicate your hotel choices. List your arrival and departure days and dates. Check your room preference. Indicate with whom and where you will be staying if you are not making a hotel reservation. Should your room preference not be available you will automatically be placed in the room type most similar to your requested room type. All requests will be handled first-come, first-served. Reserve early!

Check the box that corresponds to your registration status. Residents and Fellows (domestic and international) must have registration form signed by Program Director. (Residents and Fellows may only register via fax or mail).

Add the $250 Hotel Deposit to the cost of your registration – this is the balance due for Annual Meeting Registration and Housing Deposit. Registrations received without deposit payment cannot be processed.

Payment: If paying by check, please make check payable to CNS Annual Meeting/Laser Registration. Any checks received on an overseas bank will be returned. Any checks returned for insufficient funds are subject to additional charges. If you are paying by credit card, write in full credit card number; print the cardholder name, expiration date and signature.

B3-B4
Practical Course and Luncheon Seminar Ticket Forms

Due to the popularity and limited space in many sessions, please indicate several choices where applicable.

Practical Courses and Luncheon Seminars are optional and each has a separate fee. If the Practical Course and/or Luncheon Seminar you list is open, your credit card will be charged accordingly. You may pay and register via the methods outlined on page 21.

Practical Course Registration (B3)
Saturday, September 15
   Afternoon Practical Courses are available.
Sunday, September 16
   Full day, morning and afternoon Practical Courses are available.

Luncheon Seminar Tickets (B4)
You may attend one Luncheon Seminar per day. Fee includes a seated lunch served in the seminar room.
   Luncheon Seminars are offered:
      Monday, September 17
      Tuesday, September 18
      Wednesday, September 19

B5
Optional/Evening/Auxiliary Tour Registration Form

(See pages 74 - 79 for details about these programs)

Please check the event tickets you would like to purchase, indicate quantity and total your purchase.

This form may be used to purchase additional tickets and order your Annual Meeting T-shirts.

PURCHASE TICKETED EVENTS ONLINE OR VIA FAX OR MAIL.
Phone orders will not be accepted.

Please print clearly to avoid registration delays!
Registration Materials Pick Up
All materials should be picked up onsite at the San Diego Convention Center.

Items included in Registration Fee
- One ticket to the Opening Reception on Sunday, September 16.
- Admission Monday - Thursday General Scientific Sessions.
- Admission Monday - Wednesday Neurosurgical Forum.
- 3-D Cadaveric Demonstration.
- Special Courses.
- Section Sessions.
- Morning Coffee and Afternoon Beverage Breaks in Exhibit Hall: Monday - Wednesday.
- Thursday Morning Coffee Break.

CNS Meeting Registration

<table>
<thead>
<tr>
<th>Category</th>
<th>Discounted Fees</th>
<th>Full Price Fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>On or before August 15, 2007 at 5:00 pm CST Register via: Internet, Fax, Phone, Mail (see page 21 for details).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Member (Active/International/Vista)</td>
<td>$575</td>
<td>$675</td>
</tr>
<tr>
<td>Transitional Member</td>
<td>$575</td>
<td>$675</td>
</tr>
<tr>
<td>Non-Member Neurosurgeon</td>
<td>$675</td>
<td>$775</td>
</tr>
<tr>
<td>Non-member Physician</td>
<td>$675</td>
<td>$775</td>
</tr>
<tr>
<td>Non-member/Non-Physician</td>
<td>$675</td>
<td>$725</td>
</tr>
<tr>
<td>Member of the Armed Forces</td>
<td>$475</td>
<td>$575</td>
</tr>
<tr>
<td>Resident Member*</td>
<td>$150</td>
<td>$250</td>
</tr>
<tr>
<td>Resident Non-Member*</td>
<td>$250</td>
<td>$350</td>
</tr>
<tr>
<td>Fellow Member**</td>
<td>$150</td>
<td>$250</td>
</tr>
<tr>
<td>Fellow Non-Member</td>
<td>$250</td>
<td>$350</td>
</tr>
<tr>
<td>Retired Senior Member</td>
<td>$250</td>
<td>$350</td>
</tr>
<tr>
<td>Medical Student</td>
<td>$250</td>
<td>$350</td>
</tr>
<tr>
<td>Allied Health</td>
<td>$400</td>
<td>$500</td>
</tr>
<tr>
<td>Physician Assistant</td>
<td>$400</td>
<td>$500</td>
</tr>
<tr>
<td>Nurse</td>
<td>$400</td>
<td>$500</td>
</tr>
<tr>
<td>Spouse/Guest/Child (13 &amp; over)</td>
<td>$115</td>
<td>$115</td>
</tr>
<tr>
<td>Resident Spouse</td>
<td>$75</td>
<td>$75</td>
</tr>
</tbody>
</table>

* All domestic and international Residents must have their Program Director sign registration form via fax or mail only.
**All domestic and international Fellows must attach letter from Program Coordinator verifying Fellow status.

REGISTRATION CANCELLATION POLICY
All refund requests must be received in writing.

Requests accepted via:
E-mail: 2007cns@laser-registration.com
Fax: 514 379 8363
Mail:
CNS Annual Meeting/Laser Registration
c/o Laser Registration
1200 G Street NW, Suite 800
Washington, DC 20005-3967

Cancellation Date Schedule
August 22, 2007
Registration and Course & Event Tickets = Full Refund less $100 processing fee.

After August 22, 2007 and No Show
Absolutely no refunds will be issued after this date, for Registration and Course & Event tickets, regardless of cause.
2007 CNS ANNUAL MEETING EXHIBITORS

4-D Neuroimaging
AANS/CNS Sections
Abbott Spine
Accuray
ACIGI/Fujijyoki
Acra-Cut, Inc.
Ad-Tech Medical Instrument Corp.
Advanced Neuromodulation Systems
Aesculap Implant Systems
Aesculap, Inc.
Allen Medical Systems
Aloka Ultrasound
Alpha Omega Co. USA
Alphatec Spine, Inc.
American Association of Neurological Surgeons
American Surgical Sponges
Anspach Companies
Anulex Technologies, Inc.
AOSpine North America
Apatech, Inc.
Apex Medical, Inc.
Aspen Medical Products, Inc.
Atlas Spine Inc.
Axiom Worldwide
Baxter
Beekley Corporation
BFW, Inc.
Billings Clinic
Biomet Microfixation
Biomet Spine
Blackstone Medical, Inc.
Blue Chip Surgical Center Partners
BOSS Instruments, Ltd.
Boston Scientific
Bracco AMT
BrainLAB
Cardinal Health, V. Mueller
Neuro/Spine
Carl Zeiss Certified
Carl Zeiss Meditec, Inc.
Catholic Healthcare Partners
Ceremed, Inc.
Choice Spine
CLOWARD Instrument Corp.
CMF Medicin Surgical
Codman, a Johnson & Johnson Company
CompHealth
Composite Manufacturing, Inc.
Confluent Surgical, Inc.
Congress of Neurological Surgeons
Cook Medical
Cordis Neurovascular, Inc.
Cosman Medical, Inc.
Custom Spine Inc.
Cyberonics, Inc.
Cytyc Surgical Products
DePuy Spine, Inc.
Endo Johnson & Johnson Company
Designs for Vision, Inc.
Elekta
Ellman Innovations
Endure Medical, Inc.
Fehling Surgical Instruments, Inc.
FHC, Inc.
Flowtronics, Inc.
Fonar Corporation
FzioMed, Inc.
GE Healthcare
Glacier Cross, Inc.
Globus Medical
Gore & Associates
HCA Physician Recruitment
HRA Research
Image Stream Medical
IMRIS, Inc.
Innercool Therapies
Integra
Interventional Spine, Inc.
Invivo Corp.
IsoTis OrthoBiologics
JNS Publishing Group
Joimax, Inc.
Kaiser Permanente
Karger Publishers, Inc.
Karl Storz Endoscopy-America, Inc.
Kilgore International, Inc.
Kimberly-Clark
Kinamed, Inc.
Kirwan Surgical Products, Inc.
KLS - MARTIN LP
Koros USA, Inc.
Kyphon, Inc.
Kyon Clinical Imaging, Inc.
Lanx, LLC
Leica Microsystems, Inc.
Life Instrument Corp.
MarCap Corporation
Market Access Partners
MD Logic, Inc.
Medical Designs, LLC
Medical Doctor Associates
Medtronic
Merrill Lynch
MGI Pharma, Inc.
Michel Perchin
MicroVention - Terumo, Inc.
Minrad International Inc.
Mizuho America, Inc.
Möller-Wedel GmbH
Nadia International, Inc.
NDA, Inc.
NeoSpine, LLC
Neurognostics, Inc.
NeuroLogica Corporation
Neuroptics, Inc.
Neurosurgery®
Northwest Biotherapeutics, Inc.
NuVasive
Olsen Medical
Ortho Development Corporation
OSSI
OsteoMed LP
Pacific Research Labs/Sawbones
PDL BioPharma, Inc.
Pikeville Medical Center
Pioneer Surgical Technology
PMT Corporation
Porex Surgical, Inc.
Priority Consult
Pro Med Instruments, Inc.
Products for Medicine
Professional Medical Insurance Services, Inc.
Richard Wolf Medical Instruments
RosmanSearch, Inc.
RSB Spine
Saunders/Mosby - Elsevier
Scanlan International, Inc.
Schering-Plough
Scient x, USA
SeaSpine, Inc.
Siemens Medical Solutions USA, Inc.
Signus Medical, LLC
Sophysa USA Inc.
Spinal Elements
Spine Surgical Innovation
Spine Wave
SpineMark Corporation
Spineology, Inc.
SSI Ultra Instruments
SSi Ultra Instruments
Stealth Surgical LLC
Stryker
SurgiTel/General Scientific Corp.
Symmetry Medical, Inc.
Synergetics, Inc.
Synthes, Inc.
TeDan Surgical Innovations, LLC
The Brain Aneurysm Foundation
Theken
Thieme Publishers
Think First Foundation
Thompson Surgical Instruments
TomoTherapy Incorporated
Trans1, Inc.
Transonic Systems, Inc.
TrueVision Systems, Inc.
Varian Medical Systems
Vygon US
Weatherby Locums
Welch Allyn
Wiggins Medical
Wolters Kluwer Health-Lippincott Williams and Wilkins
Xoran Technologies
Zeppelin Medical Instruments LTD.
Zimmer Spine

As of 5/1/07.

Register online at www.cns.org
The 2007 CNS Exhibition offers attendees an opportunity to learn about the latest technological innovations from around the world and meet with recruiters from across the United States.

Stop by the exhibition to catch up with your current corporate contacts and make new connections. This year’s exhibition also features these additional opportunities for education and networking:

**CNS Digital Poster Center**
- View the latest research in neurosurgery via a state-of-the-art digital format.
- Find posters faster and easier than ever using digital search feature.
- NEW! Communicate with poster authors during and after the Annual Meeting via online electronic discussions.
- View color photos and short videos to enhance your understanding of the research methods and findings.
- Make instant printouts on site of the scientific information most important to you.

**CNS Video Theater**
View neurosurgical techniques demonstrated by master neurosurgeons. This video series plays continuously in the CNS Member Services Booth, #725.

**CNS University of Neurosurgery**
Test or develop your knowledge with our Non-Clinical Core Competencies course, access hundreds of neurosurgical images and videos through the University Library, and learn about new courses to come. A complimentary demonstration is available daily in the CNS Member Services booth, #725.

**CNS Job Placement Service (JPS)**
A great opportunity may be looking for you. Connect with job opportunities across the United States or set up your job agent to be automatically notified when new postings meet your criteria. A complimentary demonstration is available daily in the CNS Member Services booth.

**Publishers Row**
Browse the latest neurosurgical publications, while comparing notes with your colleagues.

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Note: Admittance to the Exhibit Hall is by CNS name badge only. Children under 18 years old are not permitted inside the Exhibit Hall.
ANNUAL MEETING AT-A-GLANCE

Saturday September 15
1:00 - 5:00 pm Afternoon Practical Courses (PC01 - PC08)

Sunday September 16
8:00 am - 5:00 pm Full Day Practical Courses (PC09 - PC14)
8:00 am - 12:00 pm Morning Practical Courses (PC15 - PC24)
1:00 - 5:00 pm Afternoon Practical Courses (PC25 - PC35)
3:00 - 6:00 pm Resident SANS Challenge Preliminary Rounds
6:30 - 8:30 pm CNS Opening Reception USS Midway
San Diego’s Aircraft Carrier Museum

Monday September 17
7:00 - 11:45 am General Scientific Session I
Navigating Change: Charting a New Course in Brain Tumor Therapy
9:00 - 10:30 am Integrated Medical Learning™ Session I
9:00 am - 4:30 pm Exhibits Open
9:30 - 10:30 am Coffee with Exhibitors
10:30 - 10:55 am L. Dade Lunsford: Honored Guest Lecture
11:05 - 11:45 am Douglas Kondziolka: Presidential Address
12:30 - 2:00 pm Luncheon Seminars
2:00 - 5:30 pm Special Courses
2:00 - 5:45 pm CNS Original Science Program: Neurosurgical Forum and Select Abstract Session
3:30 - 4:00 pm Refreshments with Exhibitors

Tuesday September 18
7:00 - 11:45 am General Scientific Session II
Navigating Change: Charting a New Course in Degenerative Spine Disorders
9:00 - 9:30 am Robert D. Ballard: Special Lecture
9:00 am - 4:30 pm Exhibits Open
9:30 - 10:30 am Coffee with Exhibitors
10:30 - 10:50 am L. Dade Lunsford: Honored Guest Lecture
11:15 - 11:45 am Michael Tilson Thomas: CNS Michael L.J. Apuzzo Lecture on Creativity and Innovation
12:30 - 2:00 pm Luncheon Seminars
2:00 - 5:30 pm 3-D Live Cadaveric Demonstration, Special Courses, Sections® and Consensus Conference
3:30 - 4:00 pm Refreshments with Exhibitors
5:00 - 6:00 pm Resident SANS Challenge Finals
5:30 - 6:30 pm CNS Annual Business Meeting
6:00 - 7:00 pm Resident Recruitment Social

Wednesday September 19
7:00 - 11:45 am General Scientific Session III
Navigating Change: Charting a New Course in Vascular Neurosurgery
8:55 - 9:30 am Robert D. Ballard: Special Lecture
9:00 am - 4:30 pm Exhibits Open
9:10 - 9:30 am Paul R. Sanberg: Special Lecture
9:30 - 10:30 am Coffee with Exhibitors
10:30 - 10:50 am L. Dade Lunsford: Honored Guest Lecture
11:10 - 11:45 am Salman Rushdie: Walter E. Dandy Orator
12:30 - 2:00 pm Luncheon Seminars
2:00 - 5:30 pm Digital Masters Video Symposium, Special Courses, Sections** and Consensus Conference
3:30 - 4:00 pm Refreshments with Exhibitors

Thursday September 20
7:00 - 8:20 am Interactive Case Discussions
8:30 - 11:30 am General Scientific Session IV
Navigating Change: Managing Risk, Growth and Transformation
9:50 - 10:10 am Coffee Break
10:10 - 10:40 am Steve Squyres: Special Lecture

*Tuesday Sections
2:00 - 3:30 pm Section on Disorders of the Spine and Peripheral Nerves I
Section on Neurotrauma and Critical Care I
Section on Pain
Section on Pediatric Neurological Surgery I
4:00 - 5:30 pm Section on Cerebrovascular Surgery I
Section on Stereotactic and Functional Neurosurgery I
Section on Tumors I
Consensus Conference I: Meeting Design

**Wednesday Sections
2:00 - 3:30 pm Section on Cerebrovascular Surgery II
Council of State Neurosurgical Societies
Section on Stereotactic and Functional Neurosurgery II
Section on Tumors II
4:00 - 5:30 pm Section on Disorders of the Spine and Peripheral Nerves II
Section on Neurotrauma and Critical Care II
Section on Pediatric Neurological Surgery II
Consensus Conference II: The Aging Surgeon

Register online at www.cns.org
PC01 $375
3-D Anatomy (Supratentorial)
Course Director: Albert L. Rhoton, Jr.
Learning Objective: This course will provide three-dimensional microsurgical instruction on routes through the anterior and posterior cerebrum and temporal lobe; anatomy and approaches to the later and third ventricles and pineal region; anterior skull base and cavernous sinus; and transsphenoidal, transmaxillary and transoral approaches. Upon completion of this course, participants will be able to describe the anatomy of these areas and develop an appreciation for the three-dimensional neurovascular relationships of each region.

PC02 $425
Operating in Eloquent Cortex
Course Directors: Michael M. Haglund, Jeffrey P. Blount
Faculty: Webster H. Pilcher, Michel S. Berger
Learning Objective: This course will provide an in-depth review of techniques and technologies that can be applied to identify and work within eloquent regions of the cerebral hemispheres. Upon completion of this course, participants will be able to discuss the available technologies for performing safer and more effective procedures within and around the eloquent cortex.

PC03 $425
Introduction to Endovascular Neurosurgery: Hands-on Simulators and the Treatment of Intracranial and Extracranial Cerebrovascular Disease
Course Directors: Bernard R. Bendok, Lee R. Guterman, Elad I. Levy
Faculty: Daniel Surdell, Erol Veznedaroglu, Adnan H. Siddiqui, Cameron G. McDougall, Ricardo A. Hanel, Alan S. Boulas
Learning Objective: At the completion of this course, participants will have hands-on experience with realistic simulators of carotid stenting, aneurysm coiling, and stroke thrombolysis, be exposed to basic concepts and techniques in endovascular neurosurgery, and be able to discuss endovascular device capabilities.

PC04 $425
Spinal Radiosurgery
Course Director: Peter C. Gerszten
Faculty: Jason P. Sheehan, Mark H. Bilsky, Fraser C. Henderson, Steven D. Chang, Lilyana Angelov
Learning Objective: This course will provide the attendee with an exposure to the background of spinal radiosurgery, including radiobiological principles of hypofractionated radiotherapy. An emphasis will be placed on the indications and limitations of spinal radiosurgery. The various technologies available to perform spinal radiosurgery will also be described and compared. The attendee will be able to 1) Describe the most commonly used techniques for spinal radiosurgery; 2) Discuss the current indications for and preliminary outcomes after spine radiosurgery; 3) Describe the current relative contraindications to spine radiosurgery; 4) Discuss the potential risks and complications of spine radiosurgery.

PC05 $375
Practical Neurosurgical ICU Management: The Basics (for MDs in Training, RNs, APRNs, and PAs)
Course Directors: Joshua B. Bederson, Owen Samuels
Faculty: Jennifer A. Frontera, Michael DeGeorgia, E. Sander Connolly, Jr.
Learning Objective: This course will provide the attendee to a broad spectrum of information regarding the management of a critically-ill neurosurgical patient. The attendee will learn the most up-to-date recommendations for ICP management, hemodynamic monitoring and measurement, ventilatory support, infection prevention and treatment, neurological examination, EEG monitoring, etc. Nursing contact hours will be provided through AANN. The American Association of Neuroscience Nurses is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center’s Commission on Accreditation. Physician assistants will receive credit for attendance. Each physician assistant will need to contact his or her individual membership association and certification board to determine the requirements for accepting credits. All attendees will receive a confirmation of attendance. No CME’s will be awarded to physician participants.

PC06 $375
CPT Coding: Fall 2007 Update
Course Director: Gregory J. Przybylski
Faculty: Mina Foroozar, Robert R. Johnson, Alexander Mason, William Mitchell
Learning Objective: This course provides a summary of the anticipated CPT 2008 coding changes and reviews the 2007 coding changes as well. Subspecialty areas of spine, intracranial, functional/pain and vascular surgery will be highlighted. Upon completion of this course, participants will have gained exposure to coding changes, their proper applications and compliance issues with regard to new regulations.

PC07 $425
Techniques and Technologies in Achieving Spinal Arthrodesis/Stabilization of the Cervical Spine
Course Directors: Daniel K. Resnick, Michael G. Kaiser
Faculty: Christopher P. Ames, James S. Harrop, Neill M. Wright, Langston Holly, Junichi Mizuno
Learning Objective: The indications, techniques, and complications of arthrodesis and stabilization of the cervical spine, including the craniovertebral and cervicothoracic junction, will be reviewed using lectures, case-presentations, and hands-on practical exercises. Upon completion of this course, participants will be able to discuss the appropriate indications and state of the art techniques for arthrodesis and instrumentation of the occipitocervical to cervicothoracic spine, as well as steps to avoid common complications.

PC08 $375
Applied Spinal Biomechanics
Course Director: Edward C. Benzel
Faculty: James S. Harrop, Richard P. Schlenk, Praveen V. Mummaneni, Michael P. Steinmetz
Learning Objective: This course presents the physical principles and biomechanical foundations of spinal surgery and stabilization via a didactic and interactive case discussion format. Upon completion of this course, participants will be able to discuss biomechanical principles and strategies to address clinical problems.

Register online at www.cns.org
Attention Residents:

Compete in the CNS Resident \textit{sans} Challenge at the 2007 CNS Annual Meeting!

• Earn the opportunity to compete in a live game show-style competition at the 2007 CNS Annual Meeting on Sunday, September 16 and Tuesday, September 18 and you could win bragging rights, trophies, and a cash prize for your program. (All North American, Mexican and Canadian Residents eligible).

• Take the online quiz at www.cns.org! The nine highest-scoring training programs will each send their top two players to live rounds at the 2007 CNS Annual Meeting. (Travel Expenses to the CNS Annual Meeting must be covered by program or individual).

• The winning programs at the 2007 CNS Annual Meeting will receive:

  
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  \hline
  1st Place Team & $2,500 \\
  2nd Place Team & $1,500 \\
  3rd Place Team & $1,000 \\
  \hline
  \end{tabular}
  \end{center}

  All scores are confidential.

Log on to play:

\textit{July 16, 2007 - July 31, 2007}

\textit{www.cns.org}

Register online at www.cns.org
SUNDAY, SEPTEMBER 16, 2007
ALL DAY PRACTICAL COURSES (PC09 – 14)
8:00 AM – 5:00 PM

PC09  $475
Brain Tumor Update
Course Directors: Jeffrey J. Olson, Jeffrey Bruce
Learning Objective: This course will provide the practicing clinician with an up-to-date overview of current management strategies for major types of benign and malignant brain tumors. The seminar includes current research topics but emphasizes practical management issues. Upon completion of this course, participants will be able to discuss the state-of-the-art management of benign and malignant brain tumors including glial tumors, meningiomas, acoustic neuromas, skull base tumors, pediatric tumors and metastases and discuss current concepts in glioma management including surgical techniques, adjuvant treatments, tumor biology and practical clinical management decisions.

PC10  $800
Hands On: Cerebral Revascularization
Course Directors: Fady T. Charbel, Sepideh Amin-Hanjani
Learning Objective: This course will review the indications for cerebral revascularization in the setting of cerebral ischemia and aneurysm/skull base tumor surgery. Extracranial-intracranial bypass procedures for revascularization in the anterior and posterior circulation will be demonstrated. Participants will have the opportunity to practice micro-suturing and anastomosis skills. Upon completion of this course, participants will have gained hands-on experience with micro-suturing and anastomosis techniques, be able to discuss the indications for cerebral revascularization in ischemia and aneurysm/skull base tumor surgery and describe the different bypass procedures for revascularization of the anterior and posterior circulation.

PC11  $475
Traumatic Brain Injury
Course Directors: Raj K. Narayan, Lori Anne Shutter
Faculty: Jamshid Ghajar
Learning Objective: This course focuses on current thinking regarding the non-surgical and surgical treatment of traumatic brain injury. Newer monitoring techniques, as well as promising new therapies, will be discussed. Upon completion of this course, participants will have gained exposure to current management strategies which incorporate appropriate management guidelines.

PC12  $375
Inpatient and Outpatient Management Dilemmas: For Nurses, APRNs and Physician Assistants
Course Directors: Mark E. Shaffrey, Andrea L. Strayer, MSN, APNP, CNRN
Faculty: Aaron S. Dumont, John A. Jane, Jr., David O. Okonkwo, W. Jeffrey Elias, Christopher I. Shaffrey, Gregory R. Trost, Connie Marple, APRN, Karen Casile, PA-C
Learning Objective: Upon completion of this course, participants will be able to discuss clinical management for a variety of cranial and spinal conditions. Topics include new directions in functional neurosurgery, brain tumor treatment options, cerebral disc arthroplasty, endoscopic approach to the skull base and ventricles, spinal trauma, NSAID use after fusion, current interventions for traumatic brain injury, and the vascular patient: clip versus coil. These topics will illustrate patient selection, clinical decision making, and patient outcomes for the allied health professional in outpatient and inpatient settings.

PC13  $375
Neurosurgical Practice Development, Negotiation and Liability
Course Directors: William E. Bingaman, Alan M. Scarrow, Michael P. Steinmetz
Learning Objective: Techniques to effectively build and develop a neurosurgical practice will be presented. The mechanics of operating a practice will be explored. Key aspects of medical liability will be discussed. Upon completion of this course, participants will be able to describe the neurosurgical political process and how to get involved.

PC14  $875
Nuances of Minimally Invasive Spinal Surgery
Course Directors: Kevin T. Foley, Larry T. Khoo
Faculty: Muwafak Abdulhak, Donald L. Hilton, Langston Holly, Jean-pierre Mobasser, Sylvain Palmer, Paul Park, Maurice M. Smith, Najeeb M. Thomas
Learning Objective: This course will focus on minimally invasive procedures for cervical and lumbar spine surgery. Techniques for decompression, fixation, and fusion will be discussed. Upon completion of this course, participants should be able to describe various minimally invasive techniques for cervical and lumbar spine surgery; and discuss the indications, results and potential complications for these procedures.
SUNDAY, SEPTEMBER 16, 2007
MORNING PRACTICAL COURSES (PC15 – 24)
8:00 AM – 12:00 PM

PC15 $425
Surgical Approaches to the Ventricular System
Course Directors: Alan Cohen, Mark M. Souweidane
Faculty: Jacques Caemaert, Albert L. Rhoton, Jr., George I. Jallo, Jeffrey Bruce, Joseph M. Piepmeier
Learning Objective: The course will be case-intensive and involve didactic demonstrations of open surgical and endoscopic cases supplemented with intraoperative video. The course will conclude with frank discussions of pearls, pitfalls, complication avoidance and management, and determination of when endoscopic or open surgical approaches are best utilized. At the completion of the course, the attendee will be able to discuss the best treatment alternative for intraventricular tumors within the lateral, third and fourth ventricles; describe the pertinent neuroanatomy associated with each surgical procedure; discuss potential complications with various surgical routes to the ventricular system; and outline the limitations of endoscopic approaches and recognize when to consider an alternative surgical option.

PC16 $425
Modern Indications and Techniques for Open Aneurysm Surgery
Course Directors: Byron Gregory Thompson, Jr., Michael T. Lawton
Faculty: Jacques J. Morcos, Ali F. Krisht, Saleem I. Abdulrauf, Howard A. Riina
Learning Objective: Participants will analyze case presentations of patients presenting with intracranial aneurysms to select the optimal (endovascular or microsurgical) approach. Participants will be introduced to advanced preoperative imaging evaluation to maximize effectiveness of preoperative surgical planning. Participants will be exposed to skull base approaches for anterior and posterior circulation aneurysm surgery in order to optimize exposure for complex aneurysms. Participants will review and discuss adjunctive intraoperative imaging techniques to optimize obliteration of cerebral aneurysms with preservation of parent and branch vasculature.

PC17 $425
Surgical Indications, Techniques and Alternatives for Cranial Vascular Malformations
Course Directors: Rafael J. Tamargo, E. Sander Connolly, Jr.
Faculty: H. Hunt Batjer, Neil A. Martin, Christer E. Lindquist, Robert A. Mericle
Learning Objective: Following participation in this course, participants will be able to discuss definitive endovascular treatment or pre-operative endovascular treatment techniques for treating cranial vascular malformations. A variety of transcranial approaches will be reviewed and compared, allowing the participant to compare the advantages and disadvantages inherent in each particular approach and surgical technique. The participant will also be able to discuss complication avoidance and management or peri-operative or intraoperative complications or challenges.

PC18 $375
Endovascular Aneurysm Therapy: Technical Aspects
Course Directors: Henry H. Woo, Peter A. Rasmussen
Faculty: Peter Kim Nelson, David Fiorella, Cameron G. McDougall, Elad I. Levy, Felipe Albuquerque
Learning Objective: This course will discuss new literature and potential future technology in the endovascular treatment of intracranial aneurysms. Upon completion of this course, participants will have gained exposure to newly developed coil and stent technology in the treatment of wide-necked aneurysms and will observe hands-on delivery of these devices in flow models.

PC19 $425
Cranial Radiosurgery: Current State-of-the-Art
Course Director: Andrew E. Sloan
Faculty: Steven D. Chang, Antonio DeSalles, Michael William McDermott, Frank J. Bova
Learning Objective: This course will familiarize participants with the basic features of the most commonly used radiosurgery treatment platforms, their similarities and differences, provide participants with basic principles for radiosurgery treatment planning for benign and malignant tumors, AVM’s and functional disorders and provide participants with practical experience planning treatments with expert guidance using various radiosurgery treatment platforms.

PC20 $425
Functional Neurosurgery: New Frontiers
Course Director: Ali R. Rezai
Faculty: Gordon H. Baltuch, Nicholas M. Boulis, Gerhard Friehs, Robert R. Goodman, Brian H. Kopell, Robert M. Levy, Robert J. Maciunas
Learning Objective: DBS for movement disorders such as Parkinson’s disease, tremor and dystonia is now routinely performed and is accepted as the standard of care for advanced intractable patients. In the past several years, a number of new functional neurosurgical applications are being investigated. The faculty will discuss the indications, scientific principles, patient selection, technical aspects, outcome and complications of these emerging applications in functional neurosurgery: DBS and responsive stimulation for epilepsy DBS for Tourette’s DBS for obsessive compulsive disorder and depression Cortical stimulation for stroke and Tinnitus Gene and stem cell therapy for Parkinson’s disease Brain Machine Interface.
PC21 $425
Debates in Spinal Dysraphism
Course Directors: J. Gordon McComb, Karin M. Muraszko
Faculty: Mark S. Dias, Dale Swift, Leslie N. Sutton, Michael D. Partington, Dachling Pang, David O. Cochrane, Douglas L. Brockmeyer, Hugh Garton
Learning Objective: At the conclusion of this course, participants should be able to describe the natural history and outcomes following intervention for patients with spinal dysraphisms presenting with lipomas, myelomeningocele, tethered cord, and congenital scoliosis or kyphosis; discuss the methods of evaluation for spinal dysraphism, describe the surgical approaches to repair of spinal dysraphism, report the complications and outcomes associated with such repair, and describe long term outcome for such patients.

PC22 $425
Cervical Arthroplasty
Course Director: Vincent C. Traynelis
Faculty: Jan Goffin, Steven Gill, Domagoj Coric, Robert J. Hacker, Daniel B. Murrey
Learning Objective: This course will focus on the biomechanics of cervical disk arthroplasty and the clinical indications for which it may be found useful. Following completion of this course, participants will be able to discuss the indications, implantation techniques and clinical results of arthroplasty in single level and multiple level disc operations.

PC23 $425
Adult and Pediatric Spinal Trauma Surgery
Course Director: James S. Harrop
Faculty: Dachling Pang, Ashwini D. Sharan, Douglas L. Brockmeyer, Eric M. Massicotte, R. John Hurlbert, Michael Y. Wang
Learning Objective: This course focuses on the non-surgical and surgical treatment of spinal trauma in adults and children. Indications for decompression, arthrodesis, instrumentation, and bracing will be discussed. The management and identification of differences in spinal trauma in various sub-populations will be emphasized. Upon completion of this course, participants will have gained exposure to current management strategies which incorporate appropriate management guidelines.

PC24 $425
Challenges in Anterior Spinal Access
Course Directors: Brian R. Subach, John C. Liu
Faculty: Michael K. Rosner, Arnold H. Menezes, Marc Eichler, Robert F. Heary, Stephen L. Ondra
Learning Objective: Surgical corridors to the cervical, thoracic and lumbar spine would be presented in detail. Rationale, limitations and details of approaches could include transoral, thoracotomy, anterolateral thoracolumbar, retroperitoneal, and transperitoneal routes. Concepts will be solidified by surgical video. The presentations will be case-intensive to include considerations for optimizing approach selection and complication avoidance and management. Following completion of this course, participants will be able to discuss and describe the common routes of access to the anterior spine.
SUNDAY, SEPTEMBER 16, 2007
AFTERNOON PRACTICAL COURSES (PC25 – 35)
1:00 – 5:00 PM

PC25 $375
3-D Anatomy (Infratentorial)
Course Director: Albert L. Rhoton, Jr.
Learning Objective: This course will provide three-dimensional microsurgical instruction on anatomy and approaches through the temporal bone; cerebellum and fourth ventricle; far lateral and transcondylar approaches; approaches to the cerebellopontine angle; and anatomy and approaches to the jugular foramen. Upon completion of this course, participants will be able to describe the anatomy of these areas and discuss the three-dimensional neurovascular relationships of each region.

PC26 $375
Operative Colloquium: Masters of Neurological Surgery
Course Directors: L. Dade Lunsford, Issam A. Awad
Faculty: Andres M. Lozano, Daniel K. Resnick, Chandra N. Sen, Philip H. Gutin, Robert H. Rosenwasser
Learning Objective: Using lecture, demonstration and question-and-answer sessions, this unique course will provide participants insight into the techniques of international neurosurgical masters in dealing with complex and common neurosurgical problems. The speakers are virtuosos in their particular fields, and state-of-the-art technology will be used to display refinements in operative techniques, complication avoidance, and resident education. Upon completion of this course, participants should be able to describe novel and useful techniques for the management and surgical options involved in the care of common and complex neurosurgical problems.

PC27 $425
Endovascular Digital Video Masters
Course Directors: Elad I. Levy, C. Michael Cawley
Faculty: Jacques E. Dion, Michael J. Alexander, Randall T. Higashida, Robert A. Mericle, Robert H. Rosenwasser, Howard A. Riina, Peter A. Rasmussen, L. Nelson Hopkins
Learning Objective: Following participation in this course, participants will be able to discuss the indications and techniques for treating both common and complex cerebrovascular pathologies via endovascular means. The Video Masters will discuss their respective topics and present narrated video of specific case(s) illustrating the various technical challenges and advanced techniques used to meet these challenges.

PC28 $800
Cranial Endoscopic Procedures in Neurosurgery
Course Directors: David F. Jimenez, Mark G. Luciano
Faculty: Amin Kassam, John G. Frazee, Michael R. Gaab, Graciela N. Zuccaro
Learning Objective: Upon completion of this course, through didactic and hands-on instruction, participants will have gained exposure to the use of endoscopy for intracranial applications, including management of hydrocephalus, intraventricular tumors, microneurosurgery, and transphenoidal procedures. Participants will have gained exposure to the latest endoscopic instrumentation available.

PC29 $375
Neurosurgery 2007: Literature Review
Course Directors: Paul C. McCormick, Daniel K. Resnick
Faculty: Peter D. Angevine, E. Sander Connolly, Jr., Paul G. Matz
Learning Objective: Designed for the practicing neurosurgeon, this workshop will critically analyze recent peer reviewed publications important to contemporary neurosurgical clinical practice. The faculty, comprised of editorial board members from Neurosurgery and Journal of Neurosurgery, will describe and illustrate the process and structure of peer review as it applies to recent landmark publications in medical literature, including the SPORT Trial on lumbar disc herniation and the International Study of Unruptured Intracranial Aneurysms (ISUIA). These and other contemporarily relevant papers will be used to illustrate key aspects of study design, conduct, analysis that effect study validity and the generalizability of the studies’ conclusions to individual patients. Participants will be provided with the relevant materials prior to the workshop, and a fundamental knowledge of the published papers will be assumed. Early registrants are encouraged to contact the course chairmen to submit suggestions of additional recent papers for inclusion in the workshop. After completion of this course, participants will be able to: describe and discuss the elements of study design and how it may effect a study’s validity and generalizability; discuss the strengths and limitations of the design and conduct of recent pivotal papers in the literature, including SPORT and ISUIA; explain the relevance and applicability of these studies to individual patients treated in neurosurgical practice; and apply the principles and techniques of structured peer reviewed assessment to investigational and observational clinical studies.

PC30 $425
Advanced Concepts in Neuro-Critical Care
Course Directors: E. Sander Connolly, Jr., Michael DeGeorgia
Faculty: Chad Miller, Ricardo Carhuapoma, Owen B. Samuels, Jeff Frank, Marc Popovich, Andrew Naidech
Learning Objective: This course will discuss diagnostic and therapeutic options, as well as perioperative management in the following conditions: ischemic stroke, intracerebral hemorrhage, subarachnoid hemorrhage and vasospasm. Upon completion of this course, participants will be able to describe the diagnosis and treatment of ischemic stroke, including the use of tissue plasminogen activator and decompressive craniectomy, describe the pathophysiology and treatment of subarachnoid hemorrhage, including prevention of early rebleeding and treatment of vasospasm; and discuss treatment options for intraparenchymal hemorrhage. Management of Adult Respiratory Distress Syndrome (ARDS) and cardiac dysfunction in the intensive care unit will also be reviewed.

Register online at www.cns.org
**PC31 $425**  
**Pediatric Brain Tumor Update**  
**Course Directors:** James T. Rutka, Corey Raffel  
**Faculty:** Michael D. Taylor, Ian F. Pollack, Nalin Gupta, Karin M. Muraszko, Shenandoah Robinson, John A. Jane, Jr., John Wellons, III, Bermans Iskandar, John Kestle, Andrea Jea  
**Learning Objective:** This course will provide the practicing neurosurgeon and the neurosurgery resident with an up-to-date overview of current management strategies for all types of benign and malignant brain and spinal tumors that occur in the pediatric population. The course will focus on practical management issues and neurosurgical approaches in particular for pediatric brain tumors through a series of didactic lectures and video demonstrations given by established pediatric neurosurgeons.

After completing this educational activity, participants should be able to identify the state-of-the-art treatment for benign and malignant brain tumors including astrocytoma, germ cell tumors, choroid plexus tumors, pineal region tumors, brainstem tumors, and posterior fossa tumors; discuss the various neurosurgical approaches to pediatric brain tumors depending on tumor location, imaging features, and patient age; and describe the different brain and spinal tumors that affect the pediatric population.

**PC32 $425**  
**Lumbar Arthroplasty**  
**Course Director:** William C. Welch  
**Faculty:** Eric J. Woodard, Todd Hopkins Lanman, Fred H. Geisler, Charles Theofilos  
**Learning Objective:** Following participation in this course, the participant will be exposed to the biomechanics of lumbar disc arthroplasty, the clinical indications for the procedure, and be able to describe patients who are not suitable candidates for surgery. Pertinent diagnostic studies and clinical history will be reviewed. Participants will also be exposed to pearls and pitfalls concerning the approach and implantation of a lumbar arthroplasty device and how complications can be avoided and, if present, managed.

**PC33 $500**  
**Mastering Spinal Disorders: Dealing with Complexities**  
**Course Directors:** Stephen L. Ondra, Charles Kuntz, IV  
**Faculty:** Praveen V. Mummaneni, Christopher I. Shaffrey, Laurence D. Rhines, Richard G. Fessler, Regis W. Haid, Jr.  
**Learning Objective:** Using lecture, question-and-answer and practical sessions, this unique course will provide participants insight into the mastery of complex spinal disorders, including the role of minimal access techniques and the artificial disc. Upon completion of this course, participants will be able to describe novel and useful surgical techniques for handling cases such as occipitocervical fusions, thoracic pedicle screws, spinal tumors and deformity, including strategies for complication avoidance and management.

**PC34 $350**  
**Pain of Spinal Origin: A Comprehensive Approach**  
**Course Director:** Jaimie M. Henderson  
**Faculty:** Edward C. Benzel, Christopher I. Shaffrey, Joel L. Seres, Joshua P. Prager  
**Learning Objective:** This course reviews the practical aspects of pain physiology through a discussion of the anatomical structures that have the potential to be painful. Participants will be exposed to the skills necessary to make an accurate structural diagnosis using the history, physical examination, radiological findings, and confirmatory diagnostic injections. Upon completion of this course, participants will be able to describe therapeutic options for spinal pain management, including the use of rehabilitation techniques, medications, radiofrequency neurotomy, spinal cord stimulation, and surgery.

**PC35 $425**  
**Dynamic Stabilization: Fad or Future?**  
**Course Directors:** Russ P. Nockels, Nevan G. Baldwin  
**Faculty:** Larry T. Khoo, Edward C. Benzel, Fred H. Geisler  
**Learning Objective:** After completion of this course, participants will be able to discuss the biomechanical concepts of dynamic stabilization, describe the various devices available for dynamic stabilization and discuss the theoretical and real advantages and disadvantages of dynamic stabilization.

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**CNS Opening Reception**  
6:30 - 8:30 pm  
Hosted by the CNS  
San Diego Aircraft Carrier Museum  

Live the adventure. Honor the legend. Join us aboard the historical USS Midway — San Diego’s Aircraft Carrier Museum—for the 2007 CNS Opening Reception. You’ll build a lifetime of memories and camaraderie with your colleagues, as you take in an unparalleled 360-degree view of San Diego’s sparkling skyline and Coronado Bay Bridge.

Each Annual Meeting registrant will receive one complimentary ticket to the CNS Opening Reception to join their colleagues for an assortment of sumptuous hors d’oeuvres and beverages aboard the breathtaking, historical USS Midway.

*Photo: Courtesy San Diego Aircraft Carrier Museum.*
WELCOME

The Congress of Neurological Surgeons extends a special welcome to our colleagues from the Japanese Congress of Neurological Surgeons (JCNS).

Be sure to join us for these Special Lectures and Events:

- **Japanese Luncheon Seminar:**
  Surgical Resection of Skull Based Neoplasms (T20)
  Tuesday, September 18, 12:30 - 2:00 pm

- **JCNS Guest Lecture:**
  Treatment Considerations in Cervical OPLL and Spondylosis
  Yoshinobu Iwasaki
  Tuesday, September 18 (GSS II) 11:00 - 11:15 am

- **Special Lecture:**
  Moyamoya Disease: New Insights Into its Etiology and Management
  Teiji Tominaga, Japanese Congress of Neurological Surgeons President
  Wednesday, September 19 (GSS III) 10:58 - 11:10 am

- **CNS International Reception**
  Wednesday, September 19, 2007 - See Page 64 for Details.

Be Part of the Future of Neurosurgical Education!

The Congress of Neurological Surgeons introduces Integrated Medical Learning℠ (IML) for the 2007 CNS Annual Meeting.

Pre-meeting Surveys are now available. Log in today to share your experience and opinions. Survey results drive the agenda for each of these IML Sessions:

- **Monday, September 17 – Tumor**
  *Navigating Rational Treatment Strategies for Brain Metastases: Data and Practice.*

- **Tuesday, September 18 – Spine**
  *Navigating Rational Treatment Strategies for Spondylolisthesis: Data and Practice.*

- **Wednesday, September 19 – Vascular**
  *Navigating Rational Treatment Strategies for Cerebral Aneurysms: Data and Practice.*

The CNS offers additional opportunities for attendee feedback and scientific interchange during and following these interactive sessions. Attendees will receive additional CME credit for participating in all three phases of IML.

Pre-meeting surveys were sent via e-mail in early May. To request a survey, contact us at info@1cns.org.
At-a-Glance

7:00 - 11:45 am
General Scientific Session I
Navigating Change: Charting a New Course in Brain Tumor Therapy

7:40 - 8:50 am
Integrated Medical LearningSM Session I

9:00 - 9:30 am
Robert Sapolsky: CNS Julian T. Hoff Lecture

9:00 am - 4:30 pm
Exhibits Open

9:30 - 10:30 am
Coffee with Exhibitors

10:30 - 10:55 am
L. Dade Lunsford: Honored Guest Presentation

11:05 - 11:45 am
Douglas Kondziolka: Presidential Address

12:30 - 2:00 pm
Luncheon Seminars

2:00 - 5:30 pm
Special Courses

2:00 - 5:45 pm
CNS Original Science Program: Neurosurgical Forum and Select Abstract Session

3:30 - 4:00 pm
Refreshments with Exhibitors

Navigating Change: Charting a New Course in Brain Tumor Therapy
7:00 - 11:45 am

Presiding Officer: Anthony L. Asher
Moderators: Frederick G. Barker, Michael A. Vogelbaum
Learning Objective: This General Scientific Session investigates novel techniques in the diagnosis, imaging, intra-operative detection of, and treatment of gliomas and cerebral metastases. The session incorporates interactive components and review of medical evidence designed to evolve current knowledge, attitudes and practice in this area of treatment. At the end of the session, participants will be able to list new treatment algorithms, identify novel diagnostic and therapeutic techniques, and participate in the evolution of knowledge in this practice area.

8:55 - 9:00 am
Inauguration of the CNS Julian T. Hoff Lectureship
Anthony L. Asher
Sanjay Gupta

9:00 - 9:05 am
Introduction of CNS Julian T. Hoff Lectureship
Robert Sapolsky

9:05 - 9:30 am
CNS Julian T. Hoff Lectureship: Navigating Change and the Open Mind
Robert Sapolsky

10:35 - 10:55 am
Honored Guest Lecture: Navigating Change and the Acoustic Neuroma Story: Methods, Outcomes and Myths
L. Dade Lunsford

10:55 - 11:05 am
The CNS Resident Award: Intrinsic Axon Growth Capacity of Adult Sensory Neurons Requires Smad1 and is Enhanced by BMPs
Hongyan Jenny Zou

11:05 - 11:15 am
Introduction of CNS President
Douglas Kondziolka
Mark N. Hadley

11:15 - 11.45 am
Presidential Address
Douglas Kondziolka

Register online at www.cns.org
MONDAY, SEPTEMBER 17, 2007
LUNCHEON SEMINARS
12:30 – 2:00 PM

All Luncheon Seminars include a seated lunch served in the seminar room. Luncheon Seminar fees are $60 each ($45 each for Residents/Fellows/Nurses/Physician Assistants).

M01
Resident/Honored Guest Luncheon
COMPLIMENTARY TO CNS RESIDENT MEMBERS!
Moderator: Michael P. Steinmetz
Faculty: L. Dade Lunsford
Learning Objective: Participants and our Honored Guest will review and discuss the Honored Guest's thoughts on neurosurgical education, career development, and life-long learning.

M02
Disk Arthroplasty of the Cervical and Lumbar Spine
Moderator: Stephen Papadopoulos
Faculty: Robert J. Hacker, Vincent C. Traynelis, Domagoj Coric
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the state of the art in cervical and lumbar disc arthroplasty technology and to be able to discuss the indications and relevant applications for this technology.

M03
Minimally Invasive Spine Surgery
Moderator: Richard G. Fessler
Faculty: Kevin T. Foley, Iain H. Kalfas, Tim E. Adamson
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the current indications and techniques appropriate for minimally invasive spinal surgery and be able to describe the expected outcomes and complications associated with these techniques.

M04
Anterior Skull Base Approaches: What, When and How?
Moderator: Anil Nanda
Faculty: Fred Gentili, Franco DeMonte, Rafael J. Tamargo
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the techniques available in anterior skull base surgery including endoscopic techniques and be able to discuss when these techniques are appropriate to use. Participants will be able to discuss the key steps in the successful execution of a particular anterior skull base approach.

M05
Acoustic Schwannomas: Options, Approaches and Results
Moderator: John G. Gofinios
Faculty: Michael B. Sisti, Frederick G. Barker, Robert C. Rostomily
Learning Objective: At the conclusion of this seminar, participants will be able to discuss treatment options for acoustic schwannomas, be able to discuss the surgical approaches, and be able to discuss treatment results of acoustic schwannomas, including surgical and radiosurgical techniques.

M06
State of the Art Management of Brain Metastases
Moderator: Raymond Sawaya
Faculty: William A. Friedman, Abhijit Guha, Masaaki Yamamoto, Akira Matsumura
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the current status of research pertaining to the treatment of brain metastases and comprehend surgical and radiosurgical treatment options appropriate for treating intracranial metastases, their complications and results.

M07
Malignant Gliomas: Future Treatment Alternatives
Moderator: Henry Brem
Faculty: Mark L. Rosenblum, Kevin A. Walter, Marc Levivier, Hiroki Namba
Learning Objective: At the conclusion of this seminar, participants will be able to discuss current and emerging techniques in the treatment of malignant gliomas. Participants will also be able to discuss the role of these techniques in the development and implementation of new therapies for malignant glioma tumor patients.

M08
Intraventricular Endoscopy
Moderator: Alan Cohen
Faculty: Benjamin Warf, Anthony M. Avellino, Kiroiyuki Kinouchi, Amin Kassam
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the available techniques relevant to minimally invasive intraventricular neuroendoscopy in adults and pediatrics and discuss the key technical steps and outcomes for a variety of minimally invasive intraventricular procedures.
MONDAY, SEPTEMBER 17, 2007
LUNCHEON SEMINARS
12:30 – 2:00 PM

M09
Modern Management of Posterior Circulation Aneurysms
Moderator: Daniel L. Barrow
Faculty: Robert H. Rosenwasser, Michael T. Lawton, Gazi Yasargil, Nobuhito Saito
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the natural history, surgical and endovascular treatment of anterior circulation aneurysms. Participants will be able to choose appropriate treatment strategies and discuss the advantages and risks associated with each.

M10
Salvage Strategies for Pseudoarthrosis in the Cervical and Lumbar Spine
Moderator: William C. Welch
Faculty: William E. Krauss, Anthony Frempong-Boadu, Michael Y. Wang
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the appropriate imaging modalities to accurately diagnose a pseudoarthrosis of either the cervical or lumbar spine and management strategies to increase the potential for successful clinical outcome, including current salvage techniques, their results and potential complications.

M11
Endovascular Management of Cerebrovascular Pathology: Indications, Techniques, and Outcomes
Moderator: Michael B. Horowitz
Faculty: Charles J. Prestigiacomo, Nobu Hashimoto, Sean D. Lavine
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the evidence-based indications for endovascular management of cerebrovascular disease and be able to discuss the limitations and complications associated with endovascular therapies.

M12
Craniosynostosis
Moderator: James T. Goodrich
Faculty: Ian F. Pollack, Michael L. Levy, Mark R. Proctor
Learning Objective: At the conclusion of this seminar, participants will be able to discuss craniosynostosis syndromes and discuss the appropriate indications for microsurgical management for each type and comprehend the management of syndromic craniosynostosis. Participants will be exposed to new techniques relevant in the management of craniosynostosis including endoscopic approaches.

M13
Surgery for Psychiatric Disorders: Current Treatments and Emerging Applications
Moderator: Ali R. Rezai
Faculty: Rees Cosgrove, Kelly D. Foote, Brian H. Kopell
Learning Objective: At the conclusion of this seminar, participants will be able to discuss current surgical treatments for obsessive-compulsive disorder, major depression, and other psychiatric disorders, as well as potential future applications of neuromodulatory techniques for these disorders.

M14
Pituitary Surgery: Fundamentals and Nuances
Moderator: Nelson M. Oyesiku
Faculty: Edward H. Oldfield, William T. Couldwell, Kaoru Kurisu, John A. Jane, Jr.
Learning Objective: At the conclusion of this seminar, participants will gain exposure to the fundamentals and nuances in performing pituitary surgery and be able to discuss new techniques and advances in treatment.

M15
Error and Complications and Their Avoidance
Moderator: Mark A. Bernstein
Faculty: Stephen M. Russell, Frederick F. Lang, H. Louis Harkey
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the ethical decisions involved in everyday neurosurgical practice as well as collaborations that may be considered a conflict of interest in the academic arena.

M16
Neurosurgical Management of Difficult Pediatric Problems: Case Studies
Moderator: Joseph R. Madsen
Faculty: A. Leland Albright, Rick Abbott, Richard C. Anderson
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the surgical management of challenging problems in children including difficult shunts, pediatric stroke, spasticity, deep seated tumors and challenging congenital anomalies. Participants will be able to discuss complication avoidance and outcomes in the treatment of spasticity.

M17
Neuromodulation for Pain, Movement Disorders and Stroke Rehabilitation
Moderator: Jaimie M. Henderson
Faculty: Jeffrey A. Brown, Giovanni Broggi, Aviva Abosch
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the use of motor cortex stimulation for pain, movement disorders, and stroke. Participants will be able to describe the current literature on motor cortex stimulation, as well as ongoing studies.
CNS Original Science Program

CNS Neurosurgical Forum

The Congress of Neurological Surgeons has been committed throughout its history to promoting and facilitating scientific inquiry, education and exchange. Consistent with that central tradition, the Scientific Program Committee has developed the CNS Neurosurgical Forum, during which the most compelling, novel and high impact science from all neurosurgical subspecialties will be presented in a concentrated, interactive symposium. During the Forum, investigators will communicate their observations in two distinct formats: Open Papers and Select Abstracts. During the CNS Open Paper programs (2:00 - 4:00 pm), leaders in neurological science will share with you results of their cutting-edge research. These sessions will consist of platform presentations specifically designed to make science relevant to your neurosurgical practice. The Open Paper programs will be organized by neurosurgical subspecialty and will be conducted simultaneously in physically contiguous lecture halls. This arrangement will allow attendees to shuttle rapidly between venues to see various specific presentations, thereby encouraging interdisciplinary communication and facilitating scientific exchange. An expanded and enhanced Select Abstracts session (4:00 - 5:45 pm) will provide you an opportunity to talk directly with the author of the abstract that interests you most. Ask questions, talk through techniques, and listen to poster presentations live. Authors of Select Abstracts will be asked to present their work during a multidisciplinary open poster session in the CNS Neurosurgical Forum arena after the Open Paper programs. This is an outstanding opportunity for interactive science with neurosurgeons from all subspecialty areas of practice and scientific interests.

Entirely new this year is an Open Papers session concentrating on funding mechanisms and implementation of both basic and clinical research. During the Select Abstracts session, there will also be a gathering area for investigators as the focus of a poster collection presenting currently active clinical trials. Trial investigators will be available to discuss these cutting edge clinical research opportunities. Finally, another new feature of this year’s Forum is the ability of all participants to continue their scientific dialogue through web-based interactive mechanisms after the end of the meeting.

Learning Objective: At the conclusion of this interactive educational session, participants will be able to discuss the current basic and clinical scientific data relevant to the major subspecialties of neurosurgery. They will also become familiar with those areas in neuroscience where the present knowledge base is incomplete and will be better able to help define priorities for future research efforts.

2:00 - 4:00 pm

CNS Neurosurgical Forum –
Council of State Neurosurgical Societies
Moderators: Joshua M. Rosenow, Catherine A. Mazzola

2:00 - 2:10 pm
CSNS Resident Award
801
Geographical Neurosurgical Workforce Analysis from 1990-2005 Improves Our Understanding of the Role of Market Factors
Todd Cameron Hankinson; Leif Bohman; Monique Vanaman; Natalia Egorova; Katie O. Orrico; Jeffrey Bruce; Deborah Benzil

2:10 - 2:20 pm
802
Council of State Neurosurgical Societies Neurosurgical Forum
The Impact of Government Regulation of Ambulatory Surgical Facilities on Access to Elective Neurosurgical Procedures
Elana C. Fric-Shamji; Mohammed F. Shamji

2:20 - 2:30 pm
803
Referral Criteria for Non-traumatic Intracranial Hemorrhage: Neurology versus Neurological Surgery
N. Scott Litofsky; Itay Melamed; Josh Mathews

2:30 - 4:45 pm

Shivanand P. Lad; Chirag G. Patil; Eleonora M. Lad; Justin G. Santarelli; Maxwell Boakye

Microbial Infections and Chemoprophylaxis in a Quaternary Neurosurgical Unit: An Analysis of 26,018 Consecutive Procedures (1997-2006)
Manish S. Sharma; Bhawani S. Sharma; Ashma Vohra; Arti Kapil

Surgical Site Infections (SSIs) after Elective Neurosurgery: Results of a Prospective Clinical Study on 3394 Consecutive Operations
Laura Grazia D. Valentini; Cecilia Casali; Federico G. Legnani; Sergio D. Visintini; Giovanni Broggi; Caterina Uberti Foppa

4:00 - 5:45 pm

Council of State Neurosurgical Societies Select Abstract Session
Moderator: Satish Krishnamurthy

Register online at www.cns.org
2:00 - 4:00 pm
CNS Neurosurgical Forum – Section on Cerebrovascular Surgery
Moderators: E. Sander Connolly, Jr., Robert M. Friedlander

2:00 - 2:10 pm
807
Long-term Excess Mortality in 623 Patients with Brain Arteriovenous Malformations
Aki Laakso; Reza Dashti; Johanna Seppänen; Seppo Juvela; Kristjan Väärt; Mika Niemelä; Risto Sankila; Juha A. Hernesniemi

2:10 - 2:20 pm
808
Endovascular Treatment of Dural Arteriovenous Fistulas (dAVFs) of the Cavernous Sinus, Clinical Outcomes and Techniques Over an 18-year Period
Zachary A. Smith

2:20 - 2:30 pm
809
Treatment of Giant and Complex Intracranial Aneurysms with Cardiac Standstill: Experience with 103 Patients
Francisco A. Ponce; Robert F. Spetzler; Patrick P. Han

2:30 - 2:40 pm
810
Management of Large and Giant Cerebral Aneurysms by Endovascular Therapy: A Series of 61 Consecutive Patients
Michael J. Alexander; Ketan R. Bulsara; Ali R. Zomorodi

2:40 - 2:50 pm
Galbraith Award
811
Genetic Risk Factors for Subarachnoid Haemorrhage: Insights into Pathophysiology from Candidate Gene Approaches
Laleh Morgan; Jackie Cooper; Hugh Montgomery; Steve Humphries; Neil Kitchen

2:50 - 3:00 pm
812
Linkage and Copy Number Variation Analysis of Large Families and Sibling Pairs Demonstrates Locus Heterogeneity for Familial Intracranial Aneurysms
Kaya Bilguvar; Fatih Bayrakli; Yasar Bayri; Ali Kemal Ozturk; Michael L. DiLuna; Mohamad Bydon; Murat Gunel

2007 CNS Neurosurgical Forum & Select Abstracts Session

Monday, September 17, 2007
2:00 - 5:45 PM
The centerpiece of Monday afternoon is the CNS Neurosurgical Forum and Select Abstracts, now featuring a new, interactive format!

Neurosurgical Forum
- Concentrated Neurosurgical symposium featuring the most compelling, novel and high-impact clinical and basic science.
- Multi-subspecialty assembly presented in simultaneous and physically-contiguous sessions.
- Attendees move efficiently between adjacent meeting rooms to see various presentations and interact with presenters outside their subspecialty.
- Attendees submit comments electronically to abstract authors following their presentations.

Select Abstracts Session
- Authors present their work during a multi-disciplinary Open Poster Session following the CNS Neurosurgical Forum Sessions.
- Attendees listen to poster presentations live, talk through techniques with the author and ask questions about the abstract that interests them most.
- Attendees and authors participate in electronic discussions on each poster throughout and following the Annual Meeting.

Register online at www.cns.org
3:00 - 3:10 pm
813
Haptoglobin 2-2 Genotype Determines Chronic Vasospasm after Experimental Subarachnoid Hemorrhage
Kaisorn L. Chaichana; Andrew P. Levy; Rachel Miller-Lotan; Sophia Shakur; Rafael J. Tamargo

3:10 - 3:20 pm
814
Intracranial Atherosclerosis: Treatment with Balloon Expandable and Self Expanding Stents
David B. Niemann; Aquilla S. Turk; Azam S. Ahmed; Kari A. Pulfer; Beverly Aagaard-Kienitz; Ross Levine

3:20 - 3:30 pm
815
Aortic Arch Anatomy and Neurologic Complications with Carotid Artery Stenting Among Octogenarians
Rodney Samuelson; Ramachandra P. Tummala; Babak S. Jahromi; Junichi Yamamoto; Gursant Atwal; Elad I. Levy; Adnan H. Siddiqui; Charles A. Guidot; L.N. Hopkins

3:30 - 3:40 pm
816
Long-term Clinical Outcome of Patients Who Underwent Revascularization Surgery for Moyamoya Disease Compared to the Natural History
Raphael Guzman; Michael E. Kelly; Michael Lim; Teresa Bell-Stephens; Marco B. Lee; Gary K. Steinberg

3:40 - 3:50 pm
817
Regional Cerebrovascular Reactivity Predicts Outcome in Moyamoya Patients Who Underwent Revascularization
Abel Huang

3:50 - 4:00 pm
818
The Beneficial Role of Extracellular Signal Regulated Kinases 1 and 2 (ERK1/2) in Exercise-induced Neuroprotection after Stroke
David F. Jimenez; Yuchuan Ding

4:00 - 5:45 pm
Section on Cerebrovascular Surgery Select Abstract Session
Moderator: Murat Gunel

2:00 - 4:00 pm
CNS Neurosurgical Forum – Section on Disorders of the Spine and Peripheral Nerves
Moderators: Mark R. McLaughlin, Praveen V. Mummaneni

2:00 - 2:10 pm
819
2-Year Results from a Prospective, Randomized IDE Study of the Prestige ST Cervical Disc
Praveen V. Mummaneni; Regis W. Haid Jr.; Thomas A. Zdeblick; Vincent C. Traynelis; J. Kenneth Burkus

2:10 - 2:20 pm
820
A Long-term Radiographic and Clinical Evaluation of a New rhBMP-2 Formulation in a Prospective Randomized Lumbar Posterolateral Spine Fusion Study
David Alexander; Stewart Bailey; R. John Hurlbert; Edward Abraham; Robert McBroom; James Mahood; Charles Fisher

2:20 - 2:30 pm
821
Superiority of Multiple level Cervical Arthroplasty Outcomes versus Single level Outcomes 229 Consecutive PCM Prostheses
Luiz H.D.M. Pimenta; Paul C. McAfee; Bryan W. Cunningham; Andy Cappuccino; Juliano Lhamby; Ihab Gharzeddine; Carlos Fernando Arias Pesáñdez

2:30 - 2:40 pm
822
Optimal Timing of Surgery for Traumatic Central Cord Syndrome
Alexander K. Powers; John A. Wilson, Jr.; Charles L. Branch, Jr.

2:40 - 2:50 pm
823
Chirag Gadkary Patil; Shivanand P. Lad; Teja S. Patil; Justin Santarelli; Maxwell Bokkye

2:50 - 3:00 pm
824
Role of PET Imaging in the Surgical Management of Peripheral Nerve Sheath Tumors in Patients with NF1
Ziv Williams; Jean-Valery Coumans; Miriam A. Bredella; Martin Torriani; Francis Hornicek; Hugue Ouellette; William Palmer; Allan Fischman; Scott Plotkin

3:00 - 3:10 pm
825
Use of Skin-derived Stem Cells To Promote Peripheral Nerve Regeneration and Recovery from Chronic Denervation
Sarah K. Walsh; Rajiv Midha

Register online at www.cns.org
3:10 - 3:20 pm
826
Matthew McGirt; Kevin C. Yao; Timothy F. Witham; Ali Bydon; Kaisorn L. Chaichana; Fred Epstein; George I. Jallo

3:20 - 3:30 pm
827
Time Course of Syringomyelia Resolution after Decompression of Chiari I Malformation
Nicholas Michael Wetjen; John D. Heiss; Edward H. Oldfield

3:30 - 3:40 pm
828
Aggressive Surgical Correction of Cervical Kyphotic Deformity Results in Improved Neurological Outcome
Sanjay S. Dhall; Regis W. Haid Jr.; Gerald E. Rodts, Jr.; Praveen V. Mummmaneni

3:40 - 3:50 pm
829
Does Proximal Facet Violation with Intrapedicular Fixation Destabilize the Adjacent Level? An In-Vitro Human Cadaveric Assessment
Mario J. Cardoso; Michael K. Rosner; Anton E. Dmitriev; Melvin D. Helgeson; Norman W. Gill; Timothy R. Kukla; Ronald A. Lehman

3:50 - 4:00 pm
830
Postoperative Infection of the Instrumented Spine: A Review of 1,332 Procedures Over 5 Years
Gregory S. McLoughlin; Daniel M. Sciubba; Jean Paul Wolinsky; Ali Bydon; Ziya L. Gokaslan; Timothy F. Witham

4:00 - 5:45 pm
Section on Disorders of the Spine and Peripheral Nerves Select Abstract Session
Moderator: Michael Y. Wang

2:00 - 2:10 pm
Synthes Award for Resident Research on Brain and Craniofacial Injury
831
Oxidation in Cerebral Cellular and Mitochondrial Compartments Induced by Normobaric Hyperoxia after Traumatic Brain Injury
Martin M. Tisdall; Ilias Tachtsidis; Terence S. Leung; Neil Kitchen; Clare E. Elwell; Martin Smith

2:10 - 2:20 pm
Synthes Award for Resident Research on Spinal Cord and Spinal Column Injury
832
Cannabinoid CB2 Receptor Activation Attenuates Motor and Autonomic Function Deficits in a Mouse Model of Spinal Cord Injury.
Darric E. Baty; Ming Zhang; Hongbo Li; Carolyn J. Erb; Doina Ganea; Christopher M. Loftus; Jack Jallo; Ronald F. Tuma

2:20 - 2:30 pm
Novo Nordisk Award
833
Safety and Efficacy of Recombinant Activated Factor VIIa (rFVIIa) in Traumatic Intracerebral Hemorrhage: Results of a Prospective, Randomized, Multicenter Dose-escalation Clinical Trial
Brett E. Skolnick; Raj K. Narayan; Lawrence Marshall; Michael N. Tillinger; Andrew Maas; the rFVIIa Traumatic ICH Study Group

2:30 - 2:40 pm
834
Treatment of Severe Diffuse Axonal Injury in Rats with an Acute Intravenous Dose of Polyethylene Glycol Dramatically Reduces Cytotoxic Edema Formation at One Week on Diffusion-weighted Imaging
Philip Yoder Smucker; S. K. Hekmatyar; Navin Bansal; Richard Borgens

2:40 - 2:50 pm
835
The Impact of Neurosurgical Coverage and Trauma Center Status on Patient Outcome
Arash Farahvar; Sudha Pandalai; Mark Gestring; Jason M. Schwalb

2:50 - 3:00 pm
836
Treatment of Traumatic Brain Injury in Mice with Erythropoietin
Asim Mahmood; Ye Xiong; Dunyue Lu; Michael Chopp

3:00 - 3:10 pm
837
Hippocampal Changes in the Lateral Controlled Cortical Impact Traumatic Brain Injury Model in Mice
Jeffrey Catrambone; Wenzhuan He; Joseph Menonna; Allen H. Maniker; Peter W. Carmel; Peter Dowling
3:10 - 3:20 pm
838
Monitoring of Cerebral Metabolism: Non-ischemic Impairment of Oxidative Metabolism following Severe Traumatic Brain Injury
Menashe Zaaroor; Gill E. Sviri; Jean F. Soustiel

3:20 - 3:30 pm
839
Early Hemispheric Blood Flow Asymmetry is Associated with the Onset of Vasospasm
Darrin J. Lee; Thomas C. Glenn; Paul M. Vespa; Neil A. Martin

3:30 - 3:40 pm
840
MRI Fails To Identify Unstable Cervical Spine Injuries Missed by CT in Patients without Neurologic Deficit: The Four-Year Experience of a Level I Trauma Center
Nestor D. Tomycz; Brandon Chew; Yue-Fang Chang; Richard M. Spira; David O. Okonkwo

3:40 - 3:50 pm
841
The Use of Biodegradable Poly(e-caprolactone) Scaffolds in a Rat Spinal Cord Injury Model
Hunter Geoffrey Brumblay; Jean-Christophe A. Leveque; Darice Y. Wong; Angela Fuller; Scott Hollister; Frank La Marca

3:50 - 4:00 pm
842
Transplantation of Bone Marrow Derived Mesenchymal Stromal Cells as a Scaffold for Adult Neural Stem/Progenitor Cells in the Injured Adult Rat Spinal Cord
Ann Margaret Parr; Charles Tator

4:00 - 5:45 pm
Section on Neurotrauma and Critical Care
Select Abstract Session
Moderator: Odette Harris

2:00 - 4:00 pm
CNS Neurosurgical Forum – Section on Pediatric Neurological Surgery
Moderators: Joseph R. Madsen, Edward R. Smith

2:00 - 2:10 pm
843
Duraplasty versus Cranial Decompression Alone Reduces Treatment Failure for Pediatric Chiari I Patients with Tonsil Herniation Caudal to C1 but Does Not Effect Outcome in Patients with Tonsil Herniation Rostral to C1
Matthew McGirt; Frank Attenello; Kaisorn L. Chaichana; Jon D. Weingart; Benjamin Carson; George I. Jallo

2:10 - 2:20 pm
844
Clinical and Radiological Predictors of Treatment Failure after Suboccipital Decompression for Pediatric Chiari I Malformation: Analysis of 279 Consecutive Cases
Matthew McGirt; Frank J. Attenello; Kaisorn L. Chaichana; Jon Weingart; Benjamin Carson; George I. Jallo

2:20 - 2:30 pm
845
Aquaporin 1 and Carbonic Anhydrase II Expression in Choroid Plexus Pathology
Parham Moftakhar; Zachary Smith; Dennis Malkasian; Harry V. Vinters; Jorge A. Lazareff

2:30 - 2:40 pm
846
IQ and Scholastic Achievement in Children with Hydrocephalus: Are There Strategies of Remediation?
Maureen Lacy; Martin Oliveira; Benjamin Pykkonen; Scott Hunter; David M. Frim

2:40 - 2:50 pm
847
Three Dimensional Endoscopy in Concurrent ETV and Biopsy of Third Ventricular Lesions
Lissa Catherine Baird; Hal S. Meltzer; Michael L. Levy

2:50 - 3:00 pm
848
Endoscopic Endonasal Skull Base Surgery in the Pediatric Population: Outcomes and Complications in 54 Young Patients
Daniel M. Prevedello; Amin Kassam; Ajith J. Thomas; Paul A. Gardner; Arlan H. Mintz; Carl Snyderman; Ricardo Carrau

3:00 - 3:10 pm
849
Rac1-regulated Signaling as a Novel Therapeutic Target for Medulloblastoma
Salvatore M. Zavarella; Shawn Belverud; Amanda Chan; Bettie Steinberg; Mark Mittler; Steven J. Schneider; Marc H. Symons

3:10 - 3:20 pm
850
Expression Profiling of Embryonal Tumors Reveals the mTOR Pathway as a Therapeutic Target
Manuel Ferreira; Scott L. Pomeroy
3:20 - 3:30 pm
851
Laminoplasty versus Laminectomy: Is Associated with a Decreased Incidence of Spinal Deformity after Resection of Intramedullary Spinal Cord Tumors in Children
Matthew McGirt; Kevin C. Yao; Timothy F. Witham; Ali Bydon; Kaisorn L. Chaichana; Fabien Bitan; Fred Epstein; George I. Jallo

3:30 - 3:40 pm
852
Minimally Invasive Tethered Cord Release in Pediatric Patients
Medina Calli Kushen; Daniel Curry

3:40 - 3:50 pm
853
Dural Inversion Procedure for Cranial Revascularization in Children with Moyamoya Syndrome: Surgical Results and Clinical Outcome over a 10-year Period
Andrew C. Roeser; Charles W. McCluggage; Robert C. Dauser

3:50 - 4:00 pm
854
A Relevant Animal Model of Human Neural Tube Defects, Implications for Fetal Surgery
Timothy M. George; Yohannes G. Asfaw; Thomas J. Cummings

4:00 - 5:45 pm
Section on Pediatric Neurological Surgery Select Abstract Session
Moderator: Sarah J. Gaskill

2:00 - 4:00 pm
CNS Neurosurgical Forum – Section on Stereotactic and Functional Neurosurgery
Moderators: Philip A. Starr, Michael Schulder

2:00 - 2:10 pm
855
Subcortical Ensemble Recordings for the Control of a Brain Machine Interface
Daniel A. Clayton; Timothy Hanson; Miguel A.L. Nicolelis; Dennis A. Turner

2:10 - 2:20 pm
856
Intracranial EEG Seizure Onset Pattern and Surgical Outcome in Non-Lesional Extratemporal Epilepsy
Nicholas Michael Wetjen; Greg Worrell; Jeffrey Britton; Gregory Cascino; W. R. Marsh; Fredric B. Meyer; Cheolsu Shin; Elson So

2:20 - 2:30 pm
857
Improving the Selection of Temporal Lobectomy Candidates through the Use of Multiple Subdural Electroencephalographic Prognostic Parameters
Namath Syed Hussain; James Bogert; Martin E. Weinand

2:30 - 2:40 pm
858
Developing a Two Dimensional Brain Computer Interface Using Electrocorticography
Eric C. Leuthardt; Miller Kai; Nick Anderson; Dave Limbrick; Joshua Dowling; Jonathan Wolpaw; John Miller; Daniel Moran; Jeffrey G. Ojemann; Gerwin Schalk

2:40 - 2:50 pm
859
Stereotactic Ventrooral Thalamotomy for Task-specific Focal Hand Dystonia (Writer’s or Musician’s Cramp)
Takaomi Taira

2:50 - 3:00 pm
860
Accuracy of Targeting Using a Frameless Stereotactic Targeting System for Deep Brain Stimulation Surgery
Miind S. Deogaonkar

3:00 - 3:10 pm
861
Long-term Results of Bilateral Anterior Cingulotomy for Severe Treatment-Resistant Major Depression
Donald C. Shields; Emad N. Eskandar; Scott Rauch; Ned Cassem; Alice Flaherty; Bruce Price; Rees Cosgrove; Darin D. Dougherty

3:10 - 3:20 pm
862
Feasibility Study of the Safety, Tolerability, and Efficacy of Deep Brain Stimulation in the Anterior Internal Capsule for Intractable Major Depression
Emad N. Eskandar; Scott Rauch; Marko Jameson; Alice Flaherty; Dougherty Darin

3:20 - 3:30 pm
863
Feasibility Study of the Safety and Effectiveness of an Implantable Cortical Stimulation System for Subjects with Major Depression
Brian H. Kopell; Douglas Kondziolka; Darin D. Dougherty; Robert Howland; Harold H. Harsch; Jerry L. Halverson; Emad N. Eskandar; Alvaro Pascual-Leone; Michael Thase
3:30 - 3:40 pm
864
From Tail Cell to Functioning Dopamine Neuron: Therapeutic Cloning or Tall Tales
Viviane S. Tabar

3:40 - 3:50 pm
865
CD34+ Stem Cell Therapy in Chronic Stroke Patients
Shinn-Zong (John) Lin; Woei-Cherng Shyu; Hung Li

3:50 - 4:00 pm
866
Analyses of A Phase 1 Clinical Trial of AAV-NGF (CERE-110) Gene Therapy in Alzheimer's Disease
Roy A.E. Bakay; Zoe Arvanitakis; Mark Tuszynski; Steve Potkin; Ray Bartus; David Bennett

4:00 - 5:45 pm
Section on Stereotactic and Functional Neurosurgery
Select Abstract Session
Moderator: Konstantin Slavin

CNS Neurosurgical Forum – Section on Tumors
2:00 - 4:00 pm
Moderators: Frederick G. Barker, Jeffrey Bruce

2:00 - 2:10 pm
867
Complications in Expanded Endonasal Approaches: An Analysis of the Initial 700 Patients
Amin Kassam; Daniel M. Prevedello; Carl Snyderman; Ajith J. Thomas; Paul A. Gardner; Arlan H. Mintz; Ricardo Carrau

2:10 - 2:20 pm
Preuss Resident Research Award
868
Loss of the Mismatch Repair Protein MSH6 in Human Glioblastomas Is Associated with Tumor Progression during Temozolomide Treatment
Daniel P. Cahill; Patrick J. Codd; Tracy Batchelor; William T. Curry, Jr.; David N. Louis

2:20 - 2:30 pm
869
Comparison of Progenitors Isolated from the Subventricular Zone and Intracranial Tumors in the Adult Human Brain
Einar Osland Vik-Mo; Mercy Varghese; Havard Olstorn; Cecilie Sandberg; Morten C. Moe; Jon Berg-Johnsen; Iver A. Langmoen

2:30 - 2:40 pm
870
A Cost-Utility Analysis of Surgery and Radiotherapy versus Radiotherapy Alone in the Management of Patients with Metastatic Spinal Cord Compression
Julio C. Furlan; Chan Kelvin; Guillermo Sandoval; Christopher A. Klinger; Kenneth Lam; Roy A. Patchell; Audrey Laporte; Michael G. Fehlings

2:40 - 2:50 pm
871
Enhanced Immunity to an Intracerebral Tumor Upon Immunization with an Enriched DNA-Based Vaccine
Terry Lichtor; Roberta P. Glick; Lisa Feldman; Goro Osawa; Julian Hardman; Edward P. Cohen

2:50 - 3:00 pm
Synthes Skull Base Award
872
Management of Recurrent and Refractory Cushing’s Disease with Reoperation and/or Proton Radiosurgery: Analysis of a Single Institution Experience
Manish K. Aghi; Josh Petit; Paul H. Chapman; Jay Loeffler; Anne Klibanski; Beverly Biller; Brooke Sweeringen

3:00 - 3:10 pm
Mahaley Clinical Research Award
873
Outcomes of Patients with Brain Metastases for Melanoma and Renal Cell Carcinoma Primarily Managed with Stereotactic Radiosurgery
Randy L. Jensen; Dennis Shrieve

3:10 - 3:20 pm
874
Comparative Results of fMRI and Intra-operative Electro-physiologic Cortical Mapping in Sensory-motor and Language Area Localization in Patients with Supra-tentorial Tumors
Ioannis Z. Kapsalakis; Efstathios D. Gotsis; Panagiotis Toulas; Dimitrios Verganelakis; Alexandros Papadimitriou; Joe S. Robinson; Ioannis Fezoulidis; Eftychia Z. Kapsalaki; Kostas N. Fountas

3:20 - 3:30 pm
875
The Cell Surface Chemokine Receptor CXCR4 Mediates the Proliferation of Glioblastoma Cancer Stem Cells
Moneeb Ehtesham; Khubaib Y. Mapara; Karen K. Deal; Charles B. Stevenson; Siprachanh Chanthaphaychith; John Kuttensch; Reid C. Thompson
3:30 - 3:40 pm  876
Targeting EGFR Over-expression in Glioblastoma Multiformes by Inhibition of DNA Repair
Clark C. Chen; Alan D’Andrea

3:40 - 3:50 pm  877
Nonreplicating Glioma Cells Support Oncolytic Herpes Replication If They Carry Specific Oncogene Deletions
Manish K. Aghi; Therese Visted; Ennio Antonio Chiocca

3:50 - 4:00 pm  878
Management of Spinal Intramedullary Ependymomas: The BNI Experience
Nicholas Bambakidis; Elisa Beres; Robert F. Spetzler

4:00 - 5:45 pm
Section on Tumors Select Abstract Session
Moderator: Mark E. Linskey

3:00 - 3:10 pm  879
A Cellular Treatment for Chronic Neuropathic Pain: Intrathecal Transplant of the hNT2.17 Human Neuronal Cell Line
Stacey Quintero Wolfe; Nadia Cumberbatch; Miguel Martinez; Mary Eaton

3:10 - 3:20 pm  880
Stimulating the Brain to Relieve Pain: From Homunculi to Consciousness and Deep Brain Recording to Magnetoencephalography
Erlick A.C. Pereira; Alexander L. Green; Shouyan Wang; Nicola Ray; Morten L. Kringelbach; Sarah L.F. Owen; Ned Jenkinson; Dipankar Nandi; John F. Stein; Tipu Z. Aziz

3:20 - 3:30 pm  881
Spinal Cord Stimulation versus Reoperation for Failed Back Surgery Syndrome: A Cost Effectiveness and Cost Utility Analysis Based on a Randomized, Controlled Trial
Richard B. North; David Kidd; Jarre Shipley; Rod S. Taylor

3:30 - 3:40 pm  882
Spinal Cord Stimulation with Interleaved Pulses: A Randomized, Controlled Trial
Richard B. North; David Kidd; John Olin; Jeffrey M. Sieracki; Marc Boulay

3:40 - 3:50 pm  883
Ronald R. Tasker Award
Classification of Trigeminal Neuralgia: Clinical, Therapeutic, and Prognostic Implications in a Series of 144 Patients Undergoing Microvascular Decompression
Jonathan P. Miller; Feridun Acar; Kim J. Burchiel

3:50 - 4:00 pm  884
Vascular Compression of Trigeminal Nerve in Normal Individuals: 3 Tesla MR Examination of 200 Nerves with 3D CISS Sequence
Selcuk Peker; Alp Dincer; Necmettin Pamir

4:00 - 5:45 pm
Section on Pain Select Abstract Session
Moderator: George T. Mandybur

2:00 - 3:00 pm
CNS Neurosurgical Forum – Navigating Clinical Trial Design and Translational Science
Learning Objective: Learners will hear didactic information on basic science and clinical research in neurological surgery. The session will include experts in neurosurgical basic science discussing examples of investigatory strategies as well as barriers to the careers of clinician-scientists. The session will also include experts active in clinical trial design and implementation, including leaders of current North American clinical trials. Learners will be able to list the criteria for participating as a center in trials as well as the benefits to neurosurgery and to individual patients of trial participation. They will also describe how to identify active trials that may be joined by additional centers.

2:00 - 3:00 pm
Navigating Basic and Translational Science
Moderator: Robert M. Friedlander

The Role of Neural Stem Cells in Brain Tumors
Peter B. Dirks

Understanding Brain Swelling
J. Marc Simard

The Operating Room as the Laboratory of the Neurosurgeon
Michael M. Haglund

Development of Neuroprotective Drugs
Robert M. Friedlander
3:00 - 4:00 pm
Navigating Clinical Trial Design and Participation
Moderator: Michael A. Vogelbaum

The Importance of Equipoise
Frederick G. Barker

Leveraging Academic-Community Relationships
Anthony L. Asher

How Neurocognitive Endpoints May Change Clinical Trial Designs
Elana Farace

Call for Participation: Open Trials of Interest to Neurosurgeons
Moderated by Michael A. Vogelbaum

4:00 - 5:45 pm
Active Clinical Trials Select Abstract Session

2:00 - 3:30 pm
Special Course I – Functional Neurosurgery
Beyond Movement Disorders: Brain Implants for Epilepsy, Depression, Obsessive Compulsive Disorder, Stroke and Brain-Machine Interfaces
Course Director: Ali R. Rezai
Learning Objective: In the past decade, deep brain stimulation (DBS) has been demonstrated to be safe and effective for treating advanced and medication intractable Parkinson’s disease, tremor and dystonia. There have been over 35,000 DBS implants worldwide and over 1000 publications pertaining to DBS for movement disorders. The safety, efficacy and adjustable profile of DBS has prompted clinical trials for treatment of intractable epilepsy, chronic pain, major depression and obsessive compulsive disorders. In addition to DBS, cortical stimulators are under investigation for applications such as stroke and other conditions. The field of brain machine interface and chronic recording from the brain is maturing rapidly beyond animal studies with human applications. At the completion of this course, participants will be able to describe the indications, rationale, technical approach, and preliminary outcomes of brain implants beyond the established movement disorders indication.

DBS for Psychiatric Disorders
Rees Cosgrove

DBS for Epilepsy
Gordon H. Baltuch

Cortical Stimulation for Stroke Rehabilitation
Roy A. Bakay

Brain Machine Interfaces
Gerhard Friehs

3:30 - 4:00 pm
Refreshments with Exhibitors

4:00 - 5:30 pm
Special Course II – Advances in the Management of Spinal Cord Injury
Course Director: Mark N. Hadley
Learning Objective: At the completion of the course, participants will list and explain the fundamentals of the acute and chronic management of spinal cord injuries. Rationale for treatment strategies and alternative approaches will be presented along with controversies and complication avoidance. Advances in rehabilitation science of spinal cord injury will be presented. New frontiers using stem cells and other emerging approaches will be discussed by experts in the field.

Acute Management Strategies
David O. Okonkwo

Advances in Spinal Cord Injury Science and Rehabilitation
Michael P. Steinmetz

Future Advances: Stem Cell Therapy, Regeneration, and Robotics
Michael G. Fehlings
It is with sincere appreciation that the Congress of Neurological Surgeons acknowledges the Integra Foundation as the Official 2007 CNS Education Partner.

Integrated Medical Learning™

IML Sessions at the 2007 CNS Annual Meeting were made possible through an educational grant provided by the Integra Foundation. Please be sure to join us for these interactive sessions:

**Monday, September 17 – Tumor**
Navigating Rational Treatment Strategies for Brain Metastases: Data and Practice.

**Tuesday, September 18 – Spine**
Navigating Rational Treatment Strategies for Spondylolisthesis: Data and Practice.

**Wednesday, September 19 – Vascular**
Navigating Rational Treatment Strategies for Cerebral Aneurysms: Data and Practice.
Congratulations To the CNS Abstract Award Winners

CNS Resident Award
Monday, September 17
10:55 - 11:05 am
Hongyan Jenny Zou, MD
Intrinsic Axon Growth Capacity of Adult Sensory Neurons Requires Smad1 and is Enhanced by BMPs

BrainLab Community Neurosurgery Award
Monday, September 17
4:00 - 5:45 pm - Select Abstract
Luciano Mastronardi, MD
Utility of Intraoperative MR-tractography for the Resection of Intracranial Tumors

CSNS Resident Award
Monday, September 17
2:00 - 2:10 pm
Todd Cameron Hankinson, MD
Geographical Neurosurgical Workforce Analysis from 1990-2005 Improves Our Understanding of the Role of Market Factors

Galbraith Award
Tuesday, September 18
4:25 - 4:27 pm
Laleh Morgan, BSc, MBBS
Genetic Risk Factors for Subarachnoid Hemorrhage: Insights into Pathophysiology from Candidate Gene Approaches

Integra Foundation Award
Monday, September 17
4:00 - 5:45 pm - Select Abstract
Martin A. Baggenstos, MD
Mechanisms of Morbid Hearing Loss Associated with Tumors of the Endolymphatic Sac in von Hippel-Lindau Disease

Mahaley Clinical Research Award
Monday, September 17
3:00 - 3:10 pm
Randy L. Jensen, MD
Outcomes of Patients with Brain Metastases for Melanoma and Renal Cell Carcinoma Primarily Managed with Stereotactic Radiosurgery

Novo Nordisk Award
Monday, September 17
2:20 - 2:30 pm
Raj K. Narayan, MD, FACS
Safety and Efficacy of Recombinant Activated Factor VIIa (rFVIIa) in Traumatic Intracerebral Hemorrhage: Results of a Prospective, Randomized, Multicenter Dose-escalation Clinical Trial

Preuss Resident Research Award
Monday, September 17
2:10 - 2:20 pm
Daniel P. Cahill, MD, PhD
Loss of the Mismatch Repair Protein MSH6 in Human Glioblastomas Is Associated with Tumor Progression during Temozolomide Treatment

Ronald R. Tasker Award
Monday, September 17
3:40 - 3:50 pm
Jonathan P. Miller, MD
Classification of Trigeminal Neuralgia: Clinical, Therapeutic, and Prognostic Implications in a Series of 144 Patients Undergoing Microvascular Decompression

Sherry Apple Resident Travel Scholarship
Monday, September 17
4:00 - 5:45 pm - Select Abstract
Jobyna Whiting, MD
Atypical Non-Benign Clinical Course for Spontaneous Angiogram-negative Subarachnoid Hemorrhage: A Single Center Experience with 95 Patients

Stereotactic and Functional Neurosurgery Resident Award
Monday, September 17
4:00 - 5:45 pm - Select Abstract
Sameer Anil Sheth, MD, PhD
Facilitation of Associative Learning by the Globus Pallidus

Synthes Award for Resident Research on Brain and Craniofacial Injury
Monday, September 17
2:00 - 2:10 pm
Martin Tisdall, MBBS
Oxidation in Cerebral Cellular and Mitochondrial Compartments Induced by Normobaric Hyperoxia after Traumatic Brain Injury

Synthes Award for Resident Research on Spinal Cord and Spinal Column Injury
Monday, September 17
2:10 - 2:20 pm
Darric E. Baty, MD
Cannabinoid CB2 Receptor Activation Attenuates Motor and Autonomic Function Deficits in a Mouse Model of Spinal Cord Injury

Synthes Skull Base Award
Monday, September 17
2:50 - 3:00 pm
Manish K. Aghi, MD, PhD
Management of Recurrent and Refractory Cushing’s Disease with Reoperation and/or Proton Radiosurgery: Analysis of a Single Institution Experience

Tumor ATBA Young Investigator Award
Monday, September 17
4:00 - 5:45 pm - Select Abstract
Michael A. Vogelbaum, MD, PhD
Glioma-specific Sequence-independent Toxicity of Small Interfering Double-stranded RNA Molecules

Dedicated to Advancing Neurosurgery

Our sincere thanks and appreciation go out to each committee for their dedication in organizing the 57th CNS Annual Meeting. It is due to each member’s never-ending commitment to serve the CNS that we are able to provide excellence in education.

Register online at www.cns.org
Navigating Change: Charting a New Course in Degenerative Spine Disorders
7:00 - 11:45 am
Presiding Officer: Christopher E. Wolfla
Moderators: Michael W. Groff, Charles Kuntz, IV
Learning Objective: This General Scientific Session investigates novel techniques in the diagnosis, biomechanical principles and surgical treatment of lumbar spondylolisthesis. The session incorporates interactive components and review of medical evidence designed to evolve current knowledge, attitudes and practice in this area of treatment. At the end of the session, participants will be able to list new treatment algorithms, including various anterior and posterior surgical reconstructive techniques. They will also be able to describe the advantages and disadvantages of each technique and to participate in the evolution of knowledge in this practice area.

The Spine Toolbox
7:00 - 7:10 am
Classification of Spondylolisthesis and Sagittal Spinal Alignment
Stephen L. Ondra
7:10 - 7:20 am
Enhancing Spine Fusion
Edward C. Benzel
7:20 - 7:30 am
Evolution of Motion Preservation and Dynamic Stabilization
Joseph T. Alexander
7:30 - 7:40 am
The SPORT Trial: What Neurosurgeons Need to Know
Paul C. McCormick

IML
Integrated Medical Learning
Navigating Rational Treatment Strategies for Lumbar Spondylolisthesis: Data and Practice
7:40 - 7:45 am
Introduction to Integrated Medical LearningSM (IML)
Gerald E. Rodts, Jr.
7:45 - 8:50 am
Integrated Medical LearningSM Session II
Moderators: Michael W. Groff, Charles Kuntz, IV
Case Presentations
Expert Discussion: Evidence Based Surgical Therapies for Patients with Lumbar Spondylolisthesis
Charles L. Branch, Jr., Richard G. Fessler

8:50 - 8:55 am
Distinguished Service Award Presentation
8:55 - 9:00 am
Introduction of Special Lecturer Robert D. Ballard
Douglas Kondziolka

10:50 - 10:55 am
Report from The World Federation of Neurosurgical Societies
Richard G. Perrin
10:55 - 11:00 am
Founders’ Laurel Presentation

11:15 - 11:45 am
Michael Tilson Thomas: CNS Michael L.J. Apuzzo Lecture on Creativity and Innovation
Anthony L. Asher

11:20 - 11:45 am
CNS Michael L.J. Apuzzo Lecture on Creativity and Innovation
Michael Tilson Thomas
Advance Your Education!

Introducing the *new* CNS University of Neurosurgery!
Now featuring our inaugural course:

**Non-Clinical Core Competencies**

- Systems-Based Practice
- Lifelong Learning
- Professionalism
- Practice-Based Learning

The core competencies course offers 12 hours of CNS Sponsored Category 1 CME credits.

NEW CNS University of Neurosurgery – *Complimentary Access for CNS Members*

Log in using your CNS PA user name and password.
Browse available courses and view lectures in video or narrated power-point format.
Test your knowledge with pre- and post-participation evaluations.
Access hundreds of neurosurgical images and videos through the University Library.
Offer suggestions for new courses through the feedback feature.
Purchase CME credits for $25 per hour and track credits earned through the CNS PA.

Be sure to visit CNS Member Services in the Exhibit Hall, Booth # 725, for a complimentary demonstration of the CNS University of Neurosurgery and to learn more about upcoming online courses!
Whether or not you’re currently looking for a new job, it makes sense to post your resume on the new **Job Placement Service** from the Congress of Neurological Surgeons (CNS)—because you never know what opportunities may be out there looking for you. The CNS Job Placement Service helps advance your career by putting you in touch with leading hospitals, universities and private practices.

- Quick and easy resume posting, job search and application - all COMPLIMENTARY!
- Job Agents providing automatic email notification whenever jobs match your criteria.
- Confidential resume posting option.
- Saved jobs capability – apply when you are ready.


*Let us help you post your resume and search for positions. Visit us in the CNS Exhibit Hall, Booth # 725 for a demonstration of the NEW CNS Job Placement Service.*
T18 Surgical Intervention for Lumbar Spine Disease: What the Literature Supports
Moderator: Charles L. Branch, Jr.
Faculty: Beverly C. Walters, Charles Kuntz, IV, Naresh P. Patel
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the current literature on surgical treatment of degenerative lumbar spine disease. Participants will be able to discuss the indications and expected outcomes for various lumbar spine surgical procedures.

T19 Cervical Spondylotic Myelopathy: Guidelines for Surgical Management
Moderator: Paul K. Maurer
Faculty: Michael G. Kaiser, Paul G. Matz, Timothy C. Ryken
Learning Objective: At the conclusion of this seminar, participants will be able to discuss how to diagnose the syndrome of cervical spondylotic myelopathy and evaluate the treatment options available. Participants will be able to discuss outcomes of treatment in patients with cervical spondylotic myelopathy.

T20 Japanese Luncheon Seminar: Surgical Resection of Skull Based Neoplasms
Moderator: Christopher M. Loftus
Faculty: Kazuhiro Hongo, Hajime Arai, Eiji Kohmura, Kenji Ohata
Learning Objective: This seminar is intended for Japanese speaking participants. At the conclusion of this seminar, participants will be able to discuss state of the art techniques involved with the resection of skull based neoplasms that are commonly employed in Japan.

T21 Intraoperative Salvage Techniques: Getting Out of Trouble in Spinal Surgery
Moderator: Stephen L. Ondra
Faculty: Arnold H. Menezes, Volker K. H. Sonntag, Regis W. Haid Jr.
Learning Objective: At the conclusion of this seminar, participants will have been exposed to situations when intraoperative salvage techniques are necessary in spinal surgery and be able to discuss the steps and techniques necessary to rectify intraoperative difficulties.

T22 Treatment of Peripheral Nerve Entrapment
Moderator: Michel Kliot
Faculty: Robert L. Tiel, Robert J. Spinner, Lynda J. Yang
Learning Objective: At the conclusion of this seminar, participants will be able to discuss basic nerve entrapment syndromes and their medical and surgical management, and will have been exposed to the indications and techniques associated with peripheral nerve surgery. Participants will be able to describe techniques to augment or include peripheral nerve surgery in their practices.

T23 Radiosurgery: What the Literature Supports
Moderator: Bruce E. Pollock
Faculty: Jason P. Sheehan, John G. Golfinos, Hidefumi Jokura, Roman Liscak
Learning Objective: At the conclusion of this seminar, participants will be able to describe the evidence in the medical literature supporting the use of radiosurgery for neurosurgical disorders including tumors, vascular lesions, and functional applications.

T24 Management of Low Grade Gliomas: Current Strategies and Dilemmas
Moderator: John Park
Faculty: Joseph M. Piepmeier, Daniel L. Silbergeld, Jun Yoshida, Christopher M. Duma
Learning Objective: At the conclusion of this seminar, participants will gain exposure to the various surgical and medical modalities appropriate for the treatment of low grade gliomas and be able to discuss current research pertaining to the management of these tumors. Participants will be able to discuss various medical and surgical strategies used to manage low grade gliomas.

T25 Cerebral Ischemic Disease: Current Management Strategies
Moderator: Robert L. Macdonald
Faculty: Saleem I. Abdulrauf, Toru Iwama, David J. Langer, George Teitelbaum
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the indications for both surgical and endovascular treatments of cerebral ischemic disease, including the evidence-based results and possible complications.

T26 Hydrocephalus: Current and Emerging Therapies
Moderator: Marvin Bergsneider
Faculty: Neil Feldstein, Michael J. Fritsch, Austin R. Colohan
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the available and emerging technologies relevant to the treatment of hydrocephalus. Participants will be knowledgeable about complications avoidance and outcomes in the treatment of hydrocephalus.
T27  
**Modern Management of Anterior Circulation and Giant Aneurysms**  
**Moderator:** Robert M. Friedlander  
**Faculty:** E. Sander Connolly, Jr., Giuseppe Lanzino, Susumu Miyamoto  
**Learning Objective:** At the conclusion of this seminar, participants will be able to discuss the natural history, surgical and endovascular treatment of anterior circulation aneurysms. Participants will be able to describe appropriate treatment strategies and discuss the advantages and risks associated with each.

T28  
**Surgical Treatment of Movement Disorders**  
**Moderator:** Robert M. Gross  
**Faculty:** Roy A. Bakay, Jaimie M. Henderson, Ajay Niranjan  
**Learning Objective:** At the conclusion of this seminar, participants will be able to describe the major movement disorders amenable to surgical treatment, will be able to discuss the surgical techniques, indications, and outcomes for treating specific movement disorders.

T29  
**Modern Management of Cranial AVMs**  
**Moderator:** Peter Nakaji  
**Faculty:** Christer Lindquist, Neil A. Martin, Teiji Tominaga  
**Learning Objective:** At the conclusion of this seminar, participants will be able to discuss the various treatment modalities available for the treatment of intracranial arteriovenous malformations, be able to discuss multimodality management strategies, and be able to discuss the risks and complications associated with each treatment modality.

T30  
**Traumatic Brain Injury: Lessons Learned and Future Directions**  
**Moderator:** Peter D. Le Roux  
**Faculty:** John Douglas Pickard, Alex B. Valadka, Randall Chestnut  
**Learning Objective:** At the conclusion of this seminar, participants will have been exposed to research advances in traumatic brain injury and be able to discuss various medical and surgical treatment options associated with traumatic brain injury.

T31  
**Neurosurgical ICD-9 and CPT Coding**  
**Moderator:** John A. Wilson, Jr.  
**Faculty:** Frederick A. Boop, Robert R. Johnson, William M. Mitchell  
**Learning Objective:** At the conclusion of this seminar, participants will be able to discuss complex neurosurgical coding problems in both spinal and cranial surgery and will have been exposed to various strategies for improving neurosurgical coding procedures in one’s own practice.

T32  
**Overview of Common Clinical Problems for Allied Health Providers in Neurosurgery**  
**Moderator:** Michael W. Groff  
**Faculty:** Michael F. Nido, PA-C, Andrea L. Strayer, MSN, APNP, CNRN, John A. Jane, Jr.  
**Learning Objective:** At the conclusion of this seminar, participants will be able to discuss treatment algorithms for common neurosurgical problems, and will have a better understanding of how allied healthcare professionals can optimize their clinical practice. Physician attendees will not be awarded CME credit for this course. Nursing contact hours will be provided through AANN. The American Association of Neuroscience Nurses is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center’s Commission on Accreditation. Physician assistants will receive credit for attendance. Each physician assistant will need to contact his or her individual membership association and certification board to determine the requirements for accepting credits. All attendees will receive a confirmation of attendance.

T33  
**Strategies for Financial Growth in Your Professional and Personal Life**  
**Moderator:** Gregory J. Przybylski  
**Faculty:** Gary M. Bloomgarden, Alan M. Scarro  
**Learning Objective:** At the conclusion of this seminar, participants will be able to discuss the skills necessary to develop a strong financial foundation for their practice and personal life, with an emphasis on the utilization of financial benchmarks and economic reporting systems to maximize profit and enhance negotiation skills with health plans to reduce administrative expenditures and increase payments.

T34  
**Pediatric Brain Tumors**  
**Moderator:** Mark M. Souweidane  
**Faculty:** Robert F. Keating, Mark D. Krieger, James T. Rutka  
**Learning Objective:** At the conclusion of this seminar, participants will be familiar with the various types of pediatric brain tumors and will be able to discuss the current modalities appropriate for the treatment of brain tumors in the pediatric population.

T35  
**Maintenance of Certification: What the Future Holds**  
**Moderator:** Robert A. Solomon  
**Faculty:** H. Hunt Batjer, Daniel L. Barrow  
**Learning Objective:** At the conclusion of this seminar, participants will be able to discuss the rationale and process of Maintenance of Certification and the steps necessary to collect data from their clinical practice in order to meet the requirements of MOC.

T36  
**How to Pursue an Academic Career in Neurosurgery**  
**Moderator:** David M. Frim  
**Faculty:** Robert J. Dempsey, Ennio Antonio Chiocca, Henry Brem, Robert M. Friedlander  
**Learning Objective:** Participants in this luncheon seminar will hear from experts in various niches of academic neurosurgery and research. Participants will discuss what is important to achieve during residency training in terms of research, teaching and publications. Participants will be able to describe the essential elements of curriculum vitae preparation, research grant application, how to enter the job search, how to market one’s self, and the interview process.
TUESDAY, SEPTEMBER 18, 2007
3-D LIVE DEMONSTRATIONS

2:00 - 5:30 pm
Operative Techniques with the Masters
3-D Live Cadaveric Demonstration of Surgical Techniques

Course Director: Saleem I. Abdulrauf
Learning Objective: This course will provide:
• Review of the microsurgical principles of the trajectories for lesions involving the basal cisterns.
• Review of the microsurgical principles and surgical trajectories for lesions involving the cerebellopontine angle.
• Review of the microsurgical principles for the resection of a cavernous malformation involving the brainstem.
• Review of the microsurgical principles for the clipping of a complex basilar apex aneurysm.
• Review of the microsurgical principles of surgery involving the Sylvian fissure and clipping of a complex middle cerebral artery aneurysm.
• Review of the anatomic landmarks for surgery of the cervical spinal cord.

3:00 - 3:30 pm
Refreshments with Exhibitors

3:30 – 4:00 pm
Surgical Anatomy of the Pontine Region/Microsurgical Resection of a Pontine Cavernoma
Evandro de Oliveira

Surgical Anatomy of the Cerebellopontine Angle/Microsurgical Resection of an Acoustic Schwannoma
Albert L. Rhoton, Jr.

Surgical Anatomy of the Upper Basilar Region/Microsurgical Clipping of a Complex Basilar Tip Aneurysm
Robert F. Spetzler

Surgical Anatomy of the Cervical Spinal Cord/Microsurgical Resection of a Spinal Cord Tumor
Jacques Brotchi

Surgical Anatomy of the Sylvian Fissure/Microsurgical Clipping of an MCA Aneurysm
Arthur L. Day

5:30 - 6:30 pm
CNS Annual Business Meeting

Tuesday, September 18
2:00 - 5:30 PM

Don’t miss this opportunity to watch neurosurgical masters demonstrate six microsurgical principles live from our GSS stage! This innovative session features cadaveric demonstrations using state-of-the-art, 3-dimensional imaging technology, followed by cutting-edge videos. Open to all registered medical attendees.

Register online at www.cns.org
TUESDAY, SEPTEMBER 18, 2007
SPECIAL COURSES

2:00 – 3:30 pm
Special Course III
Mental and Physical Health of the Neurosurgeon: Achieving Balance in Your Personal and Professional Life

Course Director: Allan D. Levi
Learning Objective: Neurosurgeons' time commitments at work are increasing, leaving less time for family and a balanced life. By sharing real-life stories and experiences, this session will feature several speakers who have achieved balance in the various stages of personal and professional life through trial and tribulation. In addition, a leading pediatric cardiothoracic surgeon and his wife, a psychologist and leadership counselor, both well known nationally for their work on effective communication and professional development, will explain how to set goals and limitations in and out of the OR for achieving satisfying personal and career experiences. By the end of the course, participants will describe goals for balanced professional and personal life, key objectives for professional development, and specific strategies for attaining these goals.

The Resident’s Perspective
Stacy C. Quintero
A Surgeon’s Story: Successes, Failures and a Prescription for a Balanced Life
Joseph C. Maroon
Managing the Demands of Professional Life
Jamie Dickey-Ungerleider, PhD,
Ross Ungerleider

3:30 – 4:00 pm
Refreshments with Exhibitors

4:00 – 5:30 pm
Special Course IV
The Grown-up Children: Taking Care of the Adult “Pediatric” Patient

Course Director: Richard G. Ellenbogen
Learning Objective: The participants will learn how to recognize, diagnosis and treat patients with congenital disease in an adult population. Specifically, case studies on adult patients with tethered cords, hydrocephalus, congenital malformations and pediatric brain tumors will be reviewed. Diagnostic evaluations and treatment paradigms will be discussed and the participant will be able to formulate a treatment plan at the end of this seminar.

Congenital Diseases into Adulthood
David G. McLone
Chiari, Tethered Cord and Hydrocephalus
W. Jerry Oakes
Who Should Care for the Adult Congenital Patient?
Thomas G. Luerssen

You’re Invited!
CNS Resident Recruitment Social
A Great Opportunity May be Looking for You!
Tuesday - September 18, 2007 - 6:00 - 7:00 pm

Residents
If you are within 2-3 years of completing your residency, you won’t want to miss this important and complimentary networking event. This is your opportunity to meet exhibiting recruiters and/or practicing physicians who are looking to add partners/colleagues to their practice.

Recruiters
If you are an official exhibitor of the CNS Annual Meeting and are looking to fill positions, this is your opportunity to meet the nation’s best and brightest young neurosurgeons. Come build relationships in a relaxed and informal environment. The Resident Recruitment Social is coordinated in close conjunction with the CNS Job Placement Service.

Make Your Reservation Today!
info@1cns.org or call 877 517 1CNS
Reservations accepted through August 24, 2007.
2:00 - 3:30 pm  
**Section on Neurotrauma and Critical Care I**  
**Surgical Treatment of Head Injury**  
*Moderator:* P. David Adelson  
**Learning Objective:** At the conclusion of this symposium, participants should be able to describe the effect of surgery for brain contusion on outcome in head injury and understand the scope of neurosurgical basic science and clinical research as it relates to decompressive craniectomy.

2:00 - 2:25 pm  
**Integra Lecture:** Surgery for Cerebral Contusion  
*Yoichi Katayama*

2:25 - 2:30 pm  
**Interactive Question and Answer Session**  
**Symposium – Decompressive Craniectomy: Revisiting an Old Concept**

2:30 - 2:45 pm  
**Decompressive Craniectomy in the 1970's: Fade In/Fade Out**  
*Lawrence Pitts*

2:45 - 3:00 pm  
**Everything Old Is New Again: Results in the Present Day**  
*Dilantha B. Ellegala*

2:00 - 3:30 pm  
**Section on Pain**  
**Postoperative Pain**  
*Moderator:* Joshua M. Rosenow, George T. Mandybur  
**Learning Objective:** At the conclusion of this session, participants will be able to describe some of the more common postoperative pain syndromes encountered by neurosurgeons and options for their medical and surgical management.

2:00 - 2:25 pm  
**Postoperative Occipital Neuargalia**  
*RICHARD L. WIEINER*

2:25 - 2:50 pm  
**Postoperative Painful Neuromas**  
*DAVID G. KLINE*

2:50 - 3:15 pm  
**Pain after Fusions or Disc Surgery**  
*RICHARD B. NORTH*

3:15 - 3:30 pm  
**Interactive Panel Discussion**

3:30 - 4:00 pm  
**Refreshments with Exhibitors**

2:00 - 3:30 pm  
**Section on Pediatric Neurological Surgery I**  
**The Cervical Spine in Childhood**  
*Moderator:* Douglas L. Brockmeyer  
**Learning Objective:** At the conclusion of this symposium, the participant should be able to summarize the development of the cervical spine, explain congenital and traumatic injuries to the cervical spine in childhood, and describe new treatment modalities and approaches to the pediatric cervical spine.

2:00 - 2:20 pm  
**The Development of the Pediatric Cervical Spine**  
*JohA. Jane Jr.*

2:20 - 2:40 pm  
**Anterior Approaches and Instrumentation in the Developing Cervical Spine**  
*Arnold H. Menezes*

2:40 - 3:00 pm  
**Posterior Approaches and Instrumentation in the Developing Cervical Spine**  
*Douglas L. Brockmeyer*
2:00 - 3:30 pm
Section on Disorders of the Spine and Peripheral Nerves I
ACDF vs. Arthroplasty: Challenges

Moderator: Mark R. McLaughlin
Learning Objective: At the conclusion of this session, the participant will be able to summarize the important factors in patient selection for arthroplasty and will be able to list the biomechanical and technical challenges of an artificial disc design. Also, participants will be able to discuss some of the regulatory issues surrounding artificial disc implants.

2:00 - 2:15 pm
Technological Challenges
Regis W. Haid Jr.

2:15 - 2:30 pm
Engineering Challenges: Biomaterials and Wear
Lali H. S. Sekhon

2:30 - 2:45 pm
Patient Selection Challenges: Arthroplasty
Vincent C. Traynelis

2:45 - 3:00 pm
Challenges Beyond the O.R.: Reimbursement, Regulatory and Legal
David Polly, Jr.

3:00 - 3:15 pm
Biomechanical Challenges: Motion Preservation vs. Arthrodesis
Kim Pyo

3:15 - 3:30 pm
Interactive Panel Discussion

4:00 - 5:30 pm
Section on Cerebrovascular Surgery I
Difficult Intracranial Aneurysms: Complication Avoidance and Management

Moderator: Joshua B. Bederson
Learning Objective: At the conclusion of this session, participants will be able to describe preoperative planning, potential pitfalls, and pearls for the treatment of complex intracranial aneurysms. The participant will further be able to discern the unique advantages and indications for both endovascular and open techniques in the treatment of complex aneurysms. In addition they will be able to describe complication avoidance and complication management for each treatment modality.

4:00 - 4:05 pm
Introduction of the Charles Drake Lecturer
Joshua B. Bederson

4:05 - 4:25 pm
The Charles Drake Lecture
Robert H. Rosenwasser

4:25 - 4:27
Galbraith Award Presentation

4:27 - 4:41 pm
Endovascular Perspective
L. Nelson Hopkins, III

4:40 - 4:55 pm
Surgical Perspective
H. Hunt Batjer

4:55 - 5:10 pm
Guest Lecture: In Vitro Flow Modeling To Gain Insight into Optimal Treatment Modalities
Akira Takahashi

5:10 - 5:30 pm
Interactive Panel Discussion

5:30 - 6:30 pm
CNS Annual Business Meeting

Resident SANS Challenge Finals
5:00 - 6:00 PM
See Page 30 for Details.
TUESDAY, SEPTEMBER 18, 2007
SECTION SESSIONS

4:00 - 5:30 pm
Section on Stereotactic and Functional Neurosurgery I
Brain Mapping: Current Concepts and Future Directions
Moderator: Michael Schulder, Kathryn L. Holloway
Learning Objective: At the conclusion of this symposium, participants should be able to summarize new concepts in functional imaging, and outline the major theoretical advances in functional magnetic resonance imaging, diffusion tensor imaging, and magnetoencephalography.

4:00 - 4:18 pm
Functional Magnetic Resonance Imaging
Daniel Yoshor

4:18 - 4:36 pm
Diffusion Tensor Imaging
Christopher Nimsky

4:00 - 4:20 pm
Business Meeting
Introduction: Michael William McDermott

4:20 - 4:25 pm
Awards Summary
Gene H. Barnett

4:25 - 4:30 pm
Section on Tumors I
Introduction: Innovative Functional Mapping Techniques for Resecting Cortical Tumors in Children
Michael William McDermott

4:30 - 4:42 pm
Non-invasive Techniques: fMRI, MEG, DTI
James T. Rutka

4:00 - 4:15 pm
Newest Changes in ACCME Approach and Requirements for CME Accreditation and Their Implications for Organized Neurosurgery
Daniel K. Resnick

4:15 - 4:45 pm
Latest Ideas, Concepts, Theories and Models Relating to Adult Education and Continuing Medical Education
Robert M. Galbraith

4:45 - 5:00 pm
Option 1 for General Scientific Session Structure and Format for the 2008 CNS Annual Meeting
Anthony L. Asher

4:36 - 4:54 pm
Subcortical Stimulation
Hugues Duffau

4:54 - 5:12 pm
Magneboencephalography
James T. Rutka

5:12 - 5:30 pm
Interactive Panel Discussion

4:00 - 5:30 pm
Consensus Conference I
Navigating Consensus Development: Learners Decide the Future of Neurosurgical Education
Moderator: Issam A. Awad
Learning Objective: Neurosurgeons and other clinical personnel will interact with Congress of Neurological Surgeons and other educational specialists to identify knowledge gaps, to choose the most effective learning methodologies, and to contribute to the educational strategy of future meetings. Learners will be able to list new educational paradigms and apply these choices in the design of their own continuing education.

4:00 - 4:15 pm
Newest Changes in ACCME Approach and Requirements for CME Accreditation and Their Implications for Organized Neurosurgery
Daniel K. Resnick

4:15 - 4:45 pm
Latest Ideas, Concepts, Theories and Models Relating to Adult Education and Continuing Medical Education
Robert M. Galbraith

4:45 - 5:00 pm
Option 3 for General Scientific Session Structure and Format for the 2008 CNS Annual Meeting
Nathan R. Selden

5:00 - 5:15 pm
Interactive Discussion and Consensus Development
Gerald E. Rodts, Jr., Anthony L. Asher, Nathan R. Selden

Register online at www.cns.org
Navigating Change: Charting a New Course in Vascular Neurosurgery
7:00 - 11:45 am
Presiding Officer: Joel D. MacDonald
Moderators: E. Sander Connolly, Jr., Robert M. Friedlander
Learning Objective: This General Scientific Session investigates the biology, imaging and treatment of cerebral cavernous malformations, as well as current indications for both open and endovascular treatment of cerebral aneurysms. The session incorporates interactive components and review of medical evidence designed to evolve current knowledge, attitudes and practice in this area of treatment. At the end of the session, participants will be able to list current treatment algorithms for cerebral vascular disease as well as participate in the evolution of knowledge in this practice area.
W37  
Spine Trauma and Spinal Cord Injury: Advances in Medical and Surgical Management  
**Moderator:** Mark N. Hadley  
**Faculty:** Barth A. Green, Michael G. Fehlings, R. John Hurlbert  
**Learning Objective:** At the conclusion of this seminar, participants will be able to discuss advances in the medical treatment of traumatic spinal cord injury and be able to discuss state of the art surgical management of cervical spine trauma and spinal cord injury. Participants will also be familiar with procedures for ruling out cervical spine injury in the comatose patient.

W38  
Enhancing Spinal Fusion: Biomechanical and Biochemical Approaches  
**Moderator:** Praveen V. Mummaneni  
**Faculty:** Daniel K. Resnick, Roger Hartl, Darryl J. Dirisio  
**Learning Objective:** At the conclusion of this seminar, participants will be able to discuss biochemical means for enhancing spinal fusion and discuss the biomechanics relevant to spinal fusions in the cervical, thoracic, and lumbar spine.

W39  
Metastatic Spinal Disease: The Role of Surgery and Radiation Therapy  
**Moderator:** Ziya L. Gokaslan  
**Faculty:** Richard G. Perrin, Mark H. Bilsky, Peter C. Gerszten  
**Learning Objective:** At the conclusion of this seminar, participants will be aware of current diagnostic and treatment strategies for metastatic tumors of the spine. Participants will be provided with a conceptual frameworks to make decisions about surgery, conventional radiation, radiosurgery, and vertebral augmentation.

W40  
Intraoperative Salvage Techniques: Getting Out of Trouble in Cranial Surgery  
**Moderator:** Laligam N. Sekhar  
**Faculty:** Edward R. Laws, Chandra N. Sen, Austin R. Colohan  
**Learning Objective:** At the conclusion of this seminar, participants will be able to describe indications for intraoperative salvage techniques in cranial surgery and be able to discuss indications for specific techniques for rectifying difficulties in cranial surgery.

W41  
Practical Management of Peripheral Nerve and Brachial Plexus Injury  
**Moderator:** David G. Kline  
**Faculty:** Eric L. Zager, Allan J. Belzberg, Lynda J. Yang  
**Learning Objective:** At the conclusion of this seminar, participants will be able to discuss practical strategies for the management of various peripheral nerve injuries. Participants will be able to discuss various diagnostic paradigms, treatment indications and timing, as well as surgical techniques used in the management of different kinds of injury.

W42  
Spinal Cord Tumors  
**Moderator:** Paul C. McCormick  
**Faculty:** Jacques Brotchi, Russell R. Lonser, George I. Jallo, Ehud Mendel  
**Learning Objective:** At the conclusion of this seminar, participants will be able to discuss the major types of spinal cord tumors, diagnostic and therapeutic alternatives, and complication management/avoidance related to surgical treatment of these lesions.

W43  
Current Trends and Techniques: Treatment of Cerebral Vasospasm  
**Moderator:** Elad I. Levy  
**Faculty:** Aman B. Patel, Felipe Albuquerque, Michiyasu Suzuki, Arun P. Amar  
**Learning Objective:** At the conclusion of this seminar, participants will be able to discuss the natural history and current therapies to treat cerebral vasospasm including medical management and endovascular techniques, with and emphasis on evidence-based outcomes and possible complications.

W44  
Management of Unruptured Intracranial Aneurysms: Understanding and Developing Treatment Options  
**Moderator:** Joel D. MacDonald  
**Faculty:** Issam A. Awad, Jay M. Findlay, Robert L. Macdonald, Kiyo Hiro Houkin  
**Learning Objective:** At the conclusion of this seminar, participants will be able to discuss the epidemiology and natural history of unruptured intracranial aneurysms and will be familiar with appropriate treatment algorithms for these lesions.
W45
Controversies in the Management of Chiari I Malformations
Moderator: Karin M. Muraszko
Faculty: Ulrich Batzdorf, Douglas L. Brockmeyer, Thomas H. Milhorat
Learning Objective: At the conclusion of this seminar, participants will be able to discuss various medical and surgical treatment options in the management of Chiari I malformations, their controversies, and the differences in management of pediatric vs. adult Chiari I malformations. Participants will be able to discuss new research relevant to the treatment of Chiari I malformations and syringomyelia.

W46
Trigeminal Neuralgia: Current Management Options
Moderator: Kim J. Burchiel
Faculty: Alain C. de Lotbinire, Shinji Nagahiro, Isao Date
Learning Objective: At the conclusion of this seminar, participants will be able to discuss various surgical and radiosurgical treatment options in the management of trigeminal neuralgia, as well as their associated complications and outcomes.

W47
Clinical Trials and Randomized Studies: What Every Neurosurgeon Should Know
Moderator: Michael A. Vogelbaum
Faculty: Stephen J. Haines, Frederick G. Barker, Anthony L. Asher
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the design and implementation of clinical research protocols, including how to collect and analyze data so that meaningful conclusions can be drawn. Participants will be able to compare and contrast clinical research with other types of practice data collection, and will be able to apply this knowledge to improve their own research.

W48
Current Concepts in the Neurosurgical Treatment of Epilepsy
Moderator: Johannes Schramm
Faculty: Nicholas M. Barbaro, Guy M. McKhann, II, Jean Regis
Learning Objective: At the conclusion of this seminar, participants will be able to describe the clinical features of seizure disorders and be able to discuss various techniques in the preoperative, intraoperative, and postoperative management of patients with epilepsy.

W49
Current Management of Meningiomas: Benign and Malignant
Moderator: Michael William McDermott
Faculty: Ivan S. Ciric, Jeffrey Bruce, Ali F. Krisht
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the various modalities appropriate for the treatment of benign and malignant meningiomas, as well as current research on topics related to meningiomas and their treatment.

W50
Changing Economics of Neurosurgical Health Care
Moderator: Fernando G. Diaz
Faculty: Robert E. Harbaugh, Edie E. Zusman, Katie O. Orrico
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the important issues facing neurosurgical health care including quality care, patient satisfaction, pay-for-performance, reimbursement issues, and the ever-changing governmental regulations.

W51
Anterior vs. Posterior Approaches for Cervical Radiculopathy
Moderator: Allan D. Levi
Faculty: Joseph C. Maroon, Larry T. Khoo, Phyo Kim
Learning Objective: At the conclusion of this seminar, participants will have been exposed to the advantages and disadvantages of the various surgical approaches for cervical disc herniation with radiculopathy. Participants will be able to discuss the anterior foraminotomy approach, as well as more traditional approaches.

W52
Graduating Resident’s Course
Moderator: Michael P. Steinmetz
Faculty: Craig A. Van Der Veer, Alan M. Scarrow, Linda M. Liau
Learning Objective: At the conclusion of this seminar, participants will be able to discuss relevant issues related to securing a clinical position in either a private practice or academic setting and discuss important steps to initiate and develop a successful practice.

W53
Adult Spinal Deformity: An Introduction to the Basics
Moderator: Christopher I. Shaffrey
Faculty: Robert F. Heary, Peter D. Angevine, Frank La Marca
Learning Objective: At the conclusion of this seminar, participants will be able to discuss the various types of spinal deformity, the appropriate diagnostic evaluation, and management strategies, with an emphasis on surgical planning and current operative techniques to increase the potential for a successful clinical outcome.
2:00 - 5:30 pm  
Digital Masters Video Symposium  

Moderators: Hugh Garton, Brian Ragel  

Learning Objective: After completing this educational activity, participants should be able to identify new methods of intervention for cerebral aneurysms, identify new methods for treatment of complex skull base lesions, and identify new methods for treatment of complex spine disorders.

YOU’RE INVITED  

In Honor of our International Colleagues, the Congress of Neurological Surgeons invites all international attendees to the CNS International Reception, Wednesday, September 19, 2007 at the San Diego Natural History Museum.

The San Diego Natural History Museum Presents the exhibition  
Dead Sea Scrolls

Enjoy an evening of networking with your international colleagues, as you explore the San Diego Natural History Museum’s galleries, full of fossils, artifacts and exhibitions that illustrate the science and beauty of nature—from the giant Allosaurus skeleton, to exquisite nature photography, to a live rattlesnake. The facility, an historic building built in the 1930s, is part of Balboa Park’s rich cultural history.

As a special treat for our International Members and Guests, the Congress of Neurological Surgeons has arranged a special viewing of the museum’s Dead Sea Scrolls exhibit during the International Reception.

The Dead Sea Scrolls—objects of great mystery, intrigue and significance—are widely acknowledged to be among the greatest archaeological treasures ever discovered. The San Diego Natural History Museum’s exhibition Dead Sea Scrolls is the largest, longest, most comprehensive ever assembled in any country. Spanning two floors and 12,000 square feet, 27 Dead Sea Scrolls—10 exhibited for the first time ever—will be on display, fully interpreted with translation of text and background information.
2:00 – 3:30 pm
Special Course V
Nuances in Advanced
Minimally Invasive Spine
Surgery
Course Directors: Kevin T. Foley, Richard G. Fessler
Learning Objective: This course is intended for all neurosurgeons interested in minimally invasive spine surgery, and will be of great interest to those surgeons with previous background and experience with these techniques. Participants will gain knowledge about the indications and technical aspects of extending existing minimally-invasive decompressive techniques to the removal of intradural spinal tumors and even to the treatment of spinal deformity. Hybrid techniques that combine conventional "open" methods with tools and strategies of minimally-invasive techniques will be introduced as well.

2:00 - 2:10 pm
Welcome and Introductions
Kevin T. Foley

2:10 - 2:25 pm
Minimally Invasive Spine Surgery: Introduction and Overview
Mick Perez-Cruet

2:25 - 2:40 pm
Minimally Invasive Surgical Treatment of Intradural Tumors
Richard G. Fessler

2:40 - 2:55 pm
Mini-Open Approaches to Less Invasive Spine Surgery
Praveen V. Mummaneni

2:55 - 3:10 pm
Minimally Invasive Applications for Spinal Trauma and Deformity Reduction
Kevin T. Foley

3:10 - 3:30 pm
Panel Discussion

3:30 - 4:00 pm
Refreshments with Exhibitors

4:00 – 5:30 pm
Special Course VI
The Process of Innovation:
From Ideas to Product Development and Commercialization
Course Director: Edward C. Benzel
Learning Objective: Experts in the field of surgical innovation and product development will present strategies and identify barriers to progress. At the end of the session, participants will identify the complexities, nuances and barriers to the innovations process, begin to develop the skills required to be creative in a new era of innovation, list product development intellectual property protection terminology and methodologies, list steps in the long path to commercialization and identify conflicts of interest and strategies for their management.

The Novel Idea
Vincent C. Traynelis

The "Rules of the Game"
Deborah Birnie

The Commercialization Process
Richard E. Kuntz

Conflicts of Interest and Conflict Management
Edward C. Benzel
2:00 - 3:30 pm  
**Section on**  
Cerebrovascular Surgery II  
**Treatment of Ischemic Stroke**  
**Moderator:** Joshua B. Bederson  
**Learning Objective:** Experienced surgeons will be asked to recount their experiences regarding their approach to the management of patients with symptomatic cerebral ischemia. The participants will be able to describe preoperative planning, potential pitfalls, and pearls for the treatment of acute or subacute stroke patients due to intracranial lesions and cervical vascular lesions resulting from atherosclerotic disease, intracranial occlusions due to thrombus, embolism, dissections, and moyamoya disease. In addition they will be able to describe patient selection, complication avoidance, and complication management.

2:00 - 2:05 pm  
**Introduction**  
*Joshua B. Bederson*

2:05 - 2:30 pm  
**Endovascular Treatment of Acute Stroke**  
*Peter Rasmussen*

2:30 - 2:55 pm  
**Surgical Treatment of Acute Stroke**  
*Fady T. Charbel*

2:55 - 3:20 pm  
**Guest Symposium: Update of Treatment for Moya-Moya Disease**  
*Susumu Miyamoto*

3:20 - 3:30 pm  
**Closing Remarks, Interactive Discussion**

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WEDNESDAY, SEPTEMBER 19, 2007  
SECTION SESSIONS

2:00 - 3:30 pm  
**Council of State Neurosurgical Societies**  
**Clinical Guidelines: Do They Map the Way to Improved Quality?**  
**Moderators:** Satish Krishnamurthy, Michael P. Steinmetz  
**Learning Objective:** At the end of this session, participants should be able to discuss clinical guideline development, measurement metrics for quality of care, and the nature of the relationship between care quality and clinical guidelines.

2:00 - 2:25 pm  
**Methods of Evaluating Evidence and Developing Clinical Guidelines**  
*Paul Kurtin*

2:25 - 2:50 pm  
**Do Guidelines Help Defend or Impugn the Neurosurgeon?**  
*Alan M. Scarrow*

2:50 - 3:15 pm  
**Do Guidelines Actually Improve Quality?**  
*Abhaya V. Kulkarni*

3:15 - 3:30 pm  
**Interactive Panel Discussion with Polling**

Register online at [www.cns.org](http://www.cns.org)
2:00 - 3:30 pm
Section on Stereotactic and Functional Neurosurgery II
Advances in Epilepsy Surgery
Moderator: Emad N. Eskandar, Michael G. Kaplitt
Learning Objective: At the conclusion of this symposium, participants should be able to summarize new concepts in cerebral localization for epilepsy, as well as possible indications for the use of radiosurgery or responsive neurostimulation in the treatment of epilepsy.

2:00 - 2:18 pm
Optical Imaging
Theodore H. Schwartz

2:18 - 2:36 pm
Intraoperative Recording
Itzhak Fried

2:36 - 2:54 pm
Radiosurgery for Epilepsy
Nicholas M. Barbaro

2:54 - 3:12 pm
Responsive Neurostimulation
Ryder Gwinn

3:12 - 3:30 pm
Section on Stereotactic and Functional Neurosurgery II
Interactive Panel Discussion

2:00 - 3:30 pm
Section on Tumors II
Biological Diagnostics and Therapies for the 21st Century
Moderator: Michael William McDermott
Learning Objective: At the conclusion of this symposium, participants should be able to summarize three major areas of neuro-oncologic scientific research being conducted by young neurosurgeons, discuss the extent to which scientific discoveries in neuro-oncology have been translated into clinical therapies, and outline the major areas of neuro-oncologic research that hold promise for future patients.

2:00 - 2:10 pm
Introduction: Young Neurosurgeons as Scientists
Edward R. Laws

2:10 - 2:25 pm
Biologic Therapy
Manish K. Aghi

2:25 - 2:32 pm
Senior Discussant: Biologic Therapy
Henry Brem

2:32 - 2:47 pm
Stem Cells
Peter B. Dirks

2:47 - 2:54 pm
Senior Discussant: Stem Cells
Eric Holland

2:54 - 3:09 pm
Bioinformatics
Michael D. Taylor

3:09 - 3:16 pm
Senior Discussant: Bioinformatics
Peter McLaren Black

3:16 - 3:30 pm
Interactive Audience Discussion
4:00 - 5:30 pm
Section on Neurotrauma and Critical Care II
Neurocritical Care: Frontiers
Moderator: William M. Coplin
Learning Objective: At the conclusion of this symposium, participants should be able to describe the scope of the discipline of neurocritical care, list the controversies regarding blood transfusion in severe head injury and apply the technology of brain tissue oxygen monitoring to the treatment of neurosurgical conditions.

4:00 - 4:15 pm
Evolution of Neurocritical Care
Presiding Officer: William M. Coplin

Point/Counterpoint: To Transfuse or Not To Transfuse
4:15 - 4:30 pm
Restricted Transfusion Strategy in Severe TBI
Lori A. Shutter

4:30 - 4:45 pm
Liberal Transfusion Strategy in Severe TBI
Shelly D. Timmons

4:45 - 5:00 pm
Indications and Management Protocols
Roland A. Torres

5:00 - 5:15 pm
Efficacy of Hyperoxygen Therapy
Peter LeRoux

5:15 - 5:30 pm
Interactive Panel Discussion

4:00 - 5:30 pm
Section on Pediatric Neurological Surgery II
Advances in Pediatric Epilepsy
Moderator: Glenn Morrison
Learning Objective: At the conclusion of this symposium, the participant should be able to summarize advances in diagnosing surgical pediatric epilepsy cases, explain surgical treatments and list possible salvage techniques.

4:00 - 4:20 pm
Diagnosing Pediatric Epilepsy and Surgical Decision Making
James T. Rutka

4:20 - 4:40 pm
First Line Surgical Treatments for Epilepsy: Temporal Lobectomy, Lesionectomy, Corticectomy
David M. Frim

4:40 - 4:50 pm
Second Line Treatments for Surgically Refractory Epilepsy
Glenn Morrison

5:00 - 5:30 pm
Interactive Panel Discussion

Register online at www.cns.org
4:00 - 5:30 pm
Section on Disorders of the Spine and Peripheral Nerves II

Learning Objective: Following the conclusion of the first part of this symposium, participants will have learned the indications and techniques for spinal reconstruction following resection of cervical nerve tumors. Participants will also understand the etiology of C5 nerve root palsies and potential treatment options for their patients that may suffer from this problem. Experts will also discuss the differentiation between a neurological problem arising from the cervical spine and a problem due to an upper extremity neuropathy. In the second portion of the program, experts in spinal surgery will discuss the indications for and techniques involved in correcting cervical deformity. Participants will be able to identify occipital cervical fixation techniques including bone grafting as well as cervicothoracic techniques.

4:00 - 4:30 pm
Cervical Spine and Upper Extremity Neuropathy
Moderator: Lynda J. Yang

4:00 - 4:15 pm
Cervical Peripheral Nerve Tumors: The Role of Spinal Column Reconstruction
Allan J. Belzberg

4:15 - 4:30 pm
Treatment Options for C5 Root Palsies and Cervical Spinal Surgery
Robert J. Spinner

4:30 - 5:30 pm
Cervical Spinal Deformity: Technical Mastery
Moderator: Christopher I. Shaffrey

4:30 - 4:40 pm
Occipital Cervical Junction Deformity
Yuri Shulev

4:40 - 4:50 pm
Occipitocervical Fixation
Masakazu Takayasu

4:50 - 5:00 pm
Cervical Deformity and Fixation
Hirosi Nakagawa

5:00 - 5:10 pm
Cervicothoracic Junction Deformity
Christopher H. Comey

5:10 - 5:20 pm
Biomechanical Considerations for Cervical Deformity
Praveen V. Mummaneni

5:20 - 5:30 pm
Interactive Panel Discussion

4:00 - 5:30 pm
Consensus Conference II
Navigating the Transition into Retirement: A Consensus Development Laboratory on When to Limit or Discontinue Neurosurgical Practice
Moderator: Mark E. Linskey

Learning Objective: Neurosurgeons will participate in a didactic and interactive session using consensus building methodology to identify and discuss factors affecting cognitive and physical abilities at the end stages of a neurosurgical career. Learners will be able to identify strategies for monitoring and reporting that may serve to coordinate career planning and retirement. They will have input to decision making on neurosurgical initiatives in this area.

4:00 - 4:12 pm
The Aging Surgeon: Changes in Technical Skills, Surgical Outcome in the Latter Years of Practice: Does Age Really Matter?
John Birkmeyer

4:12 - 4:24 pm
Age-Related Cognitive and Memory Changes in Surgeons
Scott A. Small

4:24 - 4:36 pm
Legal Considerations of the Aging Surgeon and Retirement
Alan M. Scarrow

4:36 - 4:48 pm
Economic and Work Force Factors and Their Effect on Neurosurgeon Retirement
Deborah Benzil

4:48 - 4:53 pm
Discussion of Potential Strategies: Allow Individual Hospital Administrations To Monitor and Decide an Aging Surgeon’s Retirement
Russell L. Travis

4:53 - 4:58 pm
Discussion of Potential Strategies: Develop a Shortened-Interval MOC and Clinical Proctoring (or Virtual Testing) Approach
Ralph G. Dacey, Jr.

4:58 - 5:03 pm
Discussion of Potential Strategies: Airline or Government Approach - Mandatory Age of Retirement Regardless of Volume, Skill, Outcomes
Richard G. Ellenbogen

5:03 - 5:30 pm
Polling and Interactive Panel Discussion
Join the Congress of Neurological Surgeons Today!

The Congress of Neurological Surgeons, a leader in education and innovation, is dedicated to advancing neurosurgery by providing members with the educational and career development opportunities they need to become leaders and innovators in the field.

| Enhance your leadership skills, | Develop and strengthen your professional relationships with some of the field’s most respected professionals and recognized leaders.  
• Valuable Networking Events.  
• Volunteer Leadership Opportunities.  
• Volunteer Opportunities in Subspecialty Section Groups. |
|---|---|
| Advance your education, | The CNS offers the most advanced and comprehensive collection of educational resources anywhere.  
• CNS Annual Meeting – Member Discount Rate.  
• NEW CNS University of Neurosurgery – Complimentary Access.  
• SANS Lifelong Learning – Member Discount Rate. |
| Further your career... | Develop the skills needed to improve your practice and connect with the right professionals to take your career to the next level.  
• CNS Job Placement Service.  
• CNS Sponsored Fellowship Awards.  
• Networking Opportunities.  
• Practice Management Courses and Resources. |
| With the CNS, you can! | CNS Members are innovators and pioneers advancing neurosurgery and neurosurgical education. Join today and let the CNS help you enhance your leadership skills, advance your education and further your career. |

Apply online at [www.cns.org](http://www.cns.org)
Navigating Change in Practice: Managing the Present and Working towards the Future
Interactive Case Discussions
7:00 - 8:20 am
Learning Objective: This General Scientific Session will investigate the avoidance, occurrence and mitigation of operative and peri-operative complications across a broad spectrum of neurosurgical procedures and of subspecialty practice. Experts in this field will review and discuss specific cases submitted by course participants and will review potential strategies for complication avoidance and management. At the end of the course, participants will be able to list potential complications in their specialty areas, identify risk factors, and elaborate strategies for avoiding complications and improving patient outcomes.

Consult with Your Expert Colleagues
Spine
Volker K. H. Sonntag, Robert F. Heany, Vincent C. Traynelis, Christopher I. Shaffrey
Peripheral Nerve
David G. Kline, Eric L. Zager, Lynda J. Yang
Cerebrovascular
Elad I. Levy, Michael T. Lawton, Robert H. Rosenwasser
Stereotactic and Functional Neurosurgery
Kathryn L. Holloway, Andres M. Lozano, Michael G. Kaplitt
Tumor
William T. Couldwell, Frederick F. Lang, Mark E. Shaffrey
Neurotrauma and Critical Care
Lawrence F. Marshall, Shelly D. Timmons
Pain
Joshua M. Rosenow, Richard K. Osenbach, Jaimie M. Henderson

GENERAL SCIENTIFIC SESSION IV
Navigating Change: Managing Risk, Growth and Transformation
8:30 - 11:30 am
Presiding Officer: P. David Adelson
Moderators: Holly Gilmer-Hill, Ganesh Rao
Learning Objective: This General Scientific Session will investigate appropriate responses to and management of neurosurgical complications, when they occur. Experts in this field will present information relevant to complication disclosure and risk management. Information regarding technology development, intellectual property and adoption of new surgical technology will also be presented. At the end of the session, participants will be able to identify improved strategies for responding to complications in their practice and managing risk, and will also be able to list the key challenges for the development and introduction of new surgical technology to the marketplace.

Special Session
“Managing Complications of Therapy, Navigating Dangerous Waters”
8:30 - 8:50 am
Breaking Bad News
Alan Cohen
8:50 - 9:10 am
Risk Management after Complications
William Roberts, JD
9:10 - 9:30 am
Tort Reform: Alternative Models
Alan M. Scarrow
9:30 - 9:50 am
Honored Guest Lecture: Future of Innovation
L. Dade Lunsford
9:50 - 10:10 am
Coffee Break
Special Session
“Emerging Technologies: Development and Reimbursement”
10:10 - 10:15 am
Introduction of Special Lecturer Steve Squyres, PhD
Nathan R. Selden
10:40 - 10:55 am
Device Development: Artificial Disk Development
Vincent C. Traynelis
10:55 - 11:10 am
Reimbursement of New and Emerging Technologies
Winifred Hayes, PhD, President, Hayes, Inc.
11:10 - 11:25 am
Government Valuation of Payment
Gregory J. Przybylski
11:25 - 11:30 am
CNS President’s Summary
Douglas Kondziolka

Register online at www.cns.org
Dear Auxiliary Member:

We welcome you to San Diego, California’s second largest city. San Diego boasts blue skies, 70 miles of beaches and a gentle Mediterranean climate. Bordered by Mexico, the Pacific Ocean, the Anza-Borrego Desert and the Laguna Mountains, San Diego County offers both beautiful vistas and numerous attractions for both adults and children.

As you plan your time in San Diego, there are many CNS events you will want to keep in mind and include in your schedule. The tours are exciting and are designed specifically for CNS attendees. They fill up fast, so plan ahead and sign up for your favorites when you register.

Be sure to join us aboard the historic USS Midway, San Diego’s Aircraft Carrier Museum, on Sunday, September 16, 6:30 – 8:30 pm, for the 2007 CNS Opening Reception. The event should be truly spectacular as you take in an unparalleled 360-degree view of San Diego’s sparkling skyline and the Coronado Bay Bridge. Due to the small tie-downs on the flight deck, we suggest that women wear a flat or wedged heel.

On Monday, September 17, you will not want to miss this year’s fascinating CNS Auxiliary Luncheon and Program in historic La Jolla. We will begin with a warm and intimate lunch at the fabulous La Valencia Hotel with panoramic views of the Pacific Ocean. Then we’ll enjoy an informative and inspiring presentation by neurosurgeon and CNN correspondent Sanjay Gupta, MD. Dr. Gupta will offer insights from his latest book, Chasing Life. Join us for a delightful afternoon with friends and learn what you can do right now to maximize your lifespan!

We have also planned an unforgettable lineup of Special Lectures throughout the week at the San Diego Convention Center. On Monday we will hear the inaugural Julian T. Hoff Lecture from author and Professor Robert Sapolsky on the concept of the “Open Mind.” On Tuesday, the CNS Michael L.J. Apuzzo Lecture on Creativity and Innovation will be given by famed San Francisco Symphony Conductor Michael Tilson Thomas. Also on Tuesday, we will hear from Dr. Robert D. Ballard, the world’s foremost Oceanographer. And on Wednesday, September 19, Author Salman Rushdie will present the Walter E. Dandy Oration “Navigating Change Across Cultures of the World.” These are just some of the fascinating lectures that are planned for our week in San Diego.

We encourage you to visit us at the CNS Spouse Hospitality Center at the San Diego Marriott Hotel and Marina, Monday through Wednesday from 7:00 to 10:30 am. You can come to relax or simply enjoy a continental breakfast before you head out to explore the excitement that the CNS has prepared for you in San Diego. A representative from the San Diego area will be available to answer any questions you might have about the city or the CNS’ abundant offerings. We hope that you will bring your family and join us this fall at the 2007 CNS Annual Meeting, September 15 – 20. It promises to be a fascinating San Diego experience.

Susan Kondziolka
CNS Auxiliary President

Jill Asher
CNS Auxiliary Chairperson
## AUXILIARY PROGRAM AT-A-GLANCE

### Saturday, September 15

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<th>Event Code</th>
<th>Time</th>
<th>Activity/Location</th>
<th>Price</th>
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<tr>
<td>AT01</td>
<td>12:30 – 5:30 pm</td>
<td>La Jolla Coast Walk/Birch Aquarium</td>
<td>$58</td>
</tr>
<tr>
<td>AT02</td>
<td>1:00 – 5:00 pm</td>
<td>Dead Sea Scrolls at Balboa Park</td>
<td>$59</td>
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<tr>
<td>OE01</td>
<td>6:00 – 11:00 pm</td>
<td>Old Globe Theatre &amp; Dinner</td>
<td>$195</td>
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<tr>
<td>OE02</td>
<td>6:00 – 11:00 pm</td>
<td>San Diego Padres Game in Private Luxury Suite</td>
<td>$225</td>
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### Sunday, September 16

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<tr>
<td>AT03</td>
<td>7:00 – 8:15 am</td>
<td>Yoga</td>
<td>$20</td>
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<tr>
<td>AT04</td>
<td>9:00 am – 1:00 pm</td>
<td>“Crown City” Walking Tour – Coronado</td>
<td>$45</td>
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<tr>
<td>AT05</td>
<td>9:00 am – 2:00 pm</td>
<td>San Diego City Tour &amp; Harbor Cruise</td>
<td>$41</td>
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<tr>
<td>AT06</td>
<td>12:30 – 5:30 pm</td>
<td>San Diego Zoo – Behind the Scenes</td>
<td>$88</td>
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<tr>
<td>AT07</td>
<td>1:00 – 2:00 pm</td>
<td>San Diego Orientation Session</td>
<td>Complimentary</td>
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<tr>
<td>AT08</td>
<td>1:00 – 5:00 pm</td>
<td>Dead Sea Scrolls at Balboa Park</td>
<td>$59</td>
</tr>
<tr>
<td>Open</td>
<td>6:30 – 8:30 pm</td>
<td>CNS Opening Reception</td>
<td>Hosted by the CNS</td>
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### Monday, September 17

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<th>Time</th>
<th>Activity/Location</th>
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<td>AT09</td>
<td>7:00 – 8:15 am</td>
<td>Pilates</td>
<td>$20</td>
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<tr>
<td>Open</td>
<td>7:00 – 10:30 am</td>
<td>CNS Spouse Hospitality Center</td>
<td>Hosted by the CNS</td>
</tr>
<tr>
<td>AT10</td>
<td>9:30 am – 3:30 pm</td>
<td>Wild Animal Park</td>
<td>$72</td>
</tr>
<tr>
<td>AT11</td>
<td>12:15 – 3:00 pm</td>
<td>CNS Auxiliary Luncheon and Program</td>
<td>$45; Hosted in part by the CNS</td>
</tr>
<tr>
<td>AT12</td>
<td>1:00 – 5:00 pm</td>
<td>Dead Sea Scrolls at Balboa Park</td>
<td>$59</td>
</tr>
<tr>
<td>OE03</td>
<td>6:00 – 11:00 pm</td>
<td>San Diego Padres Game on Private VIP Picnic Terrace</td>
<td>$135</td>
</tr>
<tr>
<td>OE04</td>
<td>6:30 – 10:30 pm</td>
<td>Dinner Cruise on San Diego Bay</td>
<td>$95</td>
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### Tuesday, September 18

<table>
<thead>
<tr>
<th>Event Code</th>
<th>Time</th>
<th>Activity/Location</th>
<th>Price</th>
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<tbody>
<tr>
<td>AT13</td>
<td>7:00 – 8:15 am</td>
<td>Yoga</td>
<td>$20</td>
</tr>
<tr>
<td>Open</td>
<td>7:00 – 10:30 am</td>
<td>CNS Spouse Hospitality Center</td>
<td>Hosted by the CNS</td>
</tr>
<tr>
<td>AT14</td>
<td>9:00 am – 12:00 pm</td>
<td>“Walk Thru Time” – Gaslamp Quarter</td>
<td>$35</td>
</tr>
<tr>
<td>AT15</td>
<td>9:30 am – 3:30 pm</td>
<td>Sea World – Lunch with Shamu</td>
<td>$159</td>
</tr>
<tr>
<td>AT16</td>
<td>9:30 am – 4:30 pm</td>
<td>Temecula Wine Tasting and Lunch</td>
<td>$95</td>
</tr>
<tr>
<td>AT17</td>
<td>1:30 – 5:30 pm</td>
<td>Hike, Bike, or Kayak – San Diego</td>
<td>$75</td>
</tr>
<tr>
<td>OE05</td>
<td>6:00 – 11:00 pm</td>
<td>Old Globe Theatre &amp; Dinner</td>
<td>$195</td>
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### Wednesday, September 19

<table>
<thead>
<tr>
<th>Event Code</th>
<th>Time</th>
<th>Activity/Location</th>
<th>Price</th>
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<tbody>
<tr>
<td>AT18</td>
<td>7:00 – 8:15 am</td>
<td>Pilates</td>
<td>$20</td>
</tr>
<tr>
<td>Open</td>
<td>7:00 – 10:30 am</td>
<td>CNS Spouse Hospitality Center</td>
<td>Hosted by the CNS</td>
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<tr>
<td>AT19</td>
<td>9:30 am – 1:30 pm</td>
<td>La Jolla Shopping and Lunch</td>
<td>$92</td>
</tr>
<tr>
<td>AT20</td>
<td>10:00 am – 2:00 pm</td>
<td>“Crown City” Walking Tour – Coronado</td>
<td>$45</td>
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</tbody>
</table>
AUXILIARY TOURS, OPTIONAL EVENTS & SOCIAL PROGRAMS

Saturday
September 15, 2007

AT01  La Jolla Coast Walk/Birch Aquarium
12:30 – 5:30 pm
$58 per person
Follow pathways and enter sandy coves as you wind along the famed La Jolla coastline learning about La Jolla’s history, marine life, and kelp beds. You’ll enjoy some of the loveliest ocean views in Southern California, and experience close encounters with pelicans, cormorants, rocky inter-tidal life, and harbor seals – usually sunning on the beach or Seal Rocks. Then take some time to enjoy the Stephen Birch Aquarium-Museum, part of the famous Scripps Institute of Oceanography. Visitors will experience a dazzling variety of marine life, from the cold waters of the Pacific Northwest to the tropical seas of Mexico and the South Pacific. Explore the largest oceanographic museum in the country, and learn about water, air, land, and life through interactive displays. Outdoors, you’ll discover a demonstration tide pool inhabited by local sea creatures. Comfortable walking shoes are recommended.

AT02  Dead Sea Scrolls at Balboa Park
1:00 – 5:00 pm
$59 per person
In San Diego for a short time, a select sampling of the Scrolls is on display at the Natural History Museum in Balboa Park. The exhibition is the result of collaboration between the Israel Antiquities Authority and the Natural History Museum. A tour that takes you back 2000 years! In 1947 a Bedouin goat herder wandering with his flock near the Dead Sea accidentally discovered a cache of ancient scrolls that are now thought to be among the greatest archaeological finds of the 20th century. The scrolls are a direct link to the ancient Middle East. They are written on papyrus and parchment in two languages – Hebrew and Aramaic. The scrolls include parts of almost every book of the Hebrew bible, as well as the Apocrypha (early Christian writings) and other treatises describing daily life in the Judean community of Qumran on the northwest shore of the Dead Sea. Your guests will have a reserved entrance time and each receive their own headsets. The audio tour will last approximately forty-five minutes. Following their visit to the Natural History Museum, guests will be given maps, and able to amble through the heart of Balboa Park, a special place where you can experience San Diego’s natural beauty, over 13 museums, wonderful art and culture and stunning Spanish Revival architecture. Note: Price includes tour guide, deluxe motorcoach, admission to the Dead Sea Scrolls Exhibit, audio headsets, and free time at Balboa Park.

OE01  Old Globe Theatre and Dinner
6:00 – 11:00 pm
$195 per person
Your evening will begin with dinner at The Prado Restaurant, one of the most beautiful restaurants in Balboa Park in The House of Hospitality. The unique décor blends the historical aspects of the House of Hospitality and whimsical accessories inspired by the Park museum collections. After dinner, your group will then stroll over to The Old Globe Theatre, for their performance of either Hamlet, Measure for Measure, or Two Gentlemen from Verona that are being performed on a rotating schedule as part of the 2007 Summer Shakespeare Festival. Rated one of the nation’s top regional theaters, the Old Globe continues to draw more than 300,000 people annually. The theatre’s featured play is sure to bring enjoyment for everyone who enjoys Shakespeare.

OE02  Padres Game at Petco Park in Private Luxury Suite
6:00 – 11:00 pm
$225 per person
“Take me out to the ballgame…” That’s all we need to hear to ensure that you and your guests enjoy a great day or evening with the San Diego Padres of the National League. Our professional staff will lead you to the stadium and direct you to your private Luxury Suite. This suite will give you your own private area with both outside and inside seating to catch the best view of the game. Included in your suite will be an onsite attendant, a hot buffet full of delicious food, cold beer and soft drinks exclusively for your group, along with a private restroom. Each member of your group will also receive a Padres cap as a souvenir. It’s all part of the game, so be a part of it all! “PLAY Ball!”

Sunday
September 16, 2007

AT03  Yoga
7:00 - 8:15 am
$20 per person
Enjoy nature and exercise at their best. Morning Yoga class will be held on the grass behind Seaport Village. This class provides an in-depth understanding of basic Yoga. Emphasis is on student’s relationship of postures and coordination of breath and movement. The goal is to achieve deep inner relaxation and unity of body, mind, and spirit while building a strong, more flexible body. Comfortable workout clothes recommended.
AUXILIARY TOURS, OPTIONAL EVENTS & SOCIAL PROGRAMS

AT04  “Crown City” Walking Tour - Coronado
9:00 am – 1:00 pm
$45 per person

Rich in history, natural beauty and a charming ocean village atmosphere, Coronado is most deserving of its royal nickname, “The Crown City.” Bordered by the Pacific Ocean, Glorietta Bay and San Diego Bay, this picturesque seaside city is linked to the Southern California coastline and the city of San Diego by the graceful and stately San Diego - Coronado Bridge, and to the south by a narrow strip of land known as the Silver Strand. Your knowledgeable guide will take you on a leisurely, narrated walking tour where you’ll learn that the Inn was once the home of John Spreckels, sugar king and San Diego benefactor. Then stroll down the boardwalk where you marvel at the waterfront mansions and see the house where The Wizard of Oz was written. Lastly, before the conclusion of your tour, you’ll hear how the North Island Naval Base was once a separate island before joining the existing peninsula. Comfortable walking shoes are recommended.

AT05  San Diego City Tour and Harbor Cruise
9:00 am – 2:00 pm
$41 per person

This informative journey through America’s finest city will introduce you to San Diego past, present and future. Your tour begins in the historic Gaslamp Quarter, originally developed by Alonzo Horton in 1854. The contemporary architecture of recent developments in this heart of Downtown San Diego complements the original buildings from the 1800’s that have been lovingly restored. Continue on through Balboa Park with its many museums and galleries housed in buildings of Spanish-Moorish architecture. Then sit back and enjoy a one-hour fully narrated tour on San Diego Bay aboard a Harbor Excursions boat with scenic views of Coronado, North Island, the Embarcadero and Cabrillo National Park. Finally, off to picturesque “Old Town,” the first European settlement in California, where you will have some free time to admire the unique shops, sample some local fare or travel back to early San Diego through the historic displays throughout Old Town. “America’s Finest City,” is waiting to be discovered!

AT06  San Diego Zoo - Behind the Scenes
12:30 – 5:30 pm
$88 per person

See the San Diego Zoo the way everyone wishes they could – from “Behind the Scenes.” The Inside Story gives guests an exclusive, ninety minute tour that’s filled with experiences and information you couldn’t get anywhere else. You’ll find out, for instance, what flamingos have in common with hot dogs and just how much it costs to feed 4,000 animals every day! The adventure begins with a guide to greet your group, followed by a private three-mile guided bus tour, a visit to one off-exhibit area and free time on Zoo grounds for the remainder of the tour. “Behind the Scenes” areas may include: The Galapagos Tortoise Yard, or The Elephant Barn to name a few. Comfortable walking shoes are recommended.

AT07  San Diego Orientation Session
1:00 – 2:00 pm
Complimentary

Come to this informative session to learn about the exciting tours offered during your time in San Diego. This will include a local expert to give an overview of San Diego, along with detailed descriptions of the highlights offered during your week.

CNS Opening Reception
6:30 – 8:30 pm
Hosted by the CNS
San Diego Aircraft Carrier Museum

Live the adventure. Honor the legend. Join us aboard the historical USS Midway – San Diego’s Aircraft Carrier Museum—for the 2007 CNS Opening Reception. You’ll build a lifetime of memories and camaraderie with your colleagues, as you take in an unparalleled 360-degree view of San Diego’s sparkling skyline and Coronado Bay Bridge.

The USS Midway - San Diego’s Aircraft Carrier Museum is the longest-serving aircraft carrier in U.S. Navy history and today it is the most visited floating naval ship museum in the world. We invite you to join us for what is sure to be a memorable evening where you can climb onto a flight simulator and feel what it was really like or stop by the gift shop for souvenirs only available aboard, or just sit back and enjoy the unforgettable view. Each Annual Meeting registrant will receive one complimentary ticket to the CNS Opening Reception to join their colleagues for an assortment of sumptuous hors d’oeuvres and beverages aboard the breathtaking, historical USS Midway.

*Photos: Courtesy San Diego Aircraft Carrier Museum

Register online at www.cns.org
Monday
September 17, 2007

AT09 Pilates
7:00 - 8:15 am
$20 per person
Enjoy nature and exercise at their best. Morning Pilates class will be held on the grass behind Seaport Village. Pilates called his method Contrology, which refers to the way the mind is used to control the muscles. The program focuses on the core postural muscles that help keep the body balanced and are essential to providing support for the spine. In particular, Pilates exercises teach awareness of breath and alignment of the spine, and strengthen the deep torso muscles, which are important to help alleviate and prevent back pain. Comfortable workout clothes recommended.

CNS SPOUSE HOSPITALITY CENTER
7:00 – 10:30 am; Hosted by the CNS
Continental breakfast and beverages will be served each morning in the CNS Spouse Hospitality Center at the San Diego Marriott Hotel & Marina.

AT10 Wild Animal Park
9:30 am – 3:30 pm
$72 per person
The San Diego Wild Animal Park is a 1,800-acre wild life preserve where 2,200 animals roam free over vast expanses, as they would at home in Africa, Asia, and South America. Located approximately 40 minutes north of the city, this ecological wonder is noted for its breeding programs dedicated to the re-introduction of endangered species to their native habitats. During your 30-minute introduction of endangered species to their native habitats. During your 30-minute guided “Journey into Africa” vehicle tour, you’ll be eye to eye with wildlife and get a new appreciation for just how huge a rhinoceros or Cape buffalo is. In this open space, you’ll see goliath herons, ostriches, and other members of our extensive bird collection mixing and mingling with gemsbok, sable antelope, Patterson’s eland, and reticulated giraffe, just as they would in the same habitat in Africa. Including feathered friends helps reflect the kind of diversity you would see on an African safari. All animal shows and exhibits are also included. Your Wild Animal Park adventure awaits – come walk on the “Wild Side”. Comfortable walking shoes are recommended.

AT11 CNS Auxiliary Luncheon and Program
12:15 – 3:00 pm
$45
Hosted in part by the CNS
A delightful afternoon awaits you at the historic La Valencia Hotel—one filled with panoramic ocean views, delicious food and a fascinating presentation by CNN medical correspondent and TIME columnist, neurosurgeon Sanjay Gupta, MD! Situated atop La Jolla Cove, overlooking the beautiful Pacific Ocean, La Valencia Hotel has been the place to stay in La Jolla since its opening in 1926. Join Auxiliary members and friends for a relaxing, mouth watering lunch in the Veranda Room while enjoying wide-angle ocean views, delicious food and a memorable presentation. Following lunch, Dr. Gupta will share insights from his recent book, Chasing Life, which takes a look at what we know today about extending life, and highlights some potentially mind-blowing technologies coming down the pike that could completely change our perception of a normal human lifespan. Dr. Gupta’s presentation will be both informative and inspiring as he shares a number of lifestyle changes you can implement right now to maximize your years. Following this memorable presentation, Dr. Gupta will be available to sign copies of his book.

AT12 Dead Sea Scrolls at Balboa Park
1:00 – 5:00 pm
$59 per person
In San Diego for a short time, a select sampling of the Scrolls is on display at the Natural History Museum in Balboa Park. The exhibition is the result of collaboration between the Israel Antiquities Authority and the Natural History Museum. A tour that takes you back 2000 years! In 1947 a Bedouin goat herder wandering with his flock near the Dead Sea accidentally discovered a cache of ancient scrolls that are now thought to be among the greatest archaeological finds of the 20th century. The scrolls are a direct link to the ancient Middle East. They are written on papyrus and parchment in two languages – Hebrew and Aramaic. The scrolls include parts of almost every book of the Hebrew bible, as well as the Apocrypha (early Christian writings) and other treatises describing daily life in the Judean community of Qumran on the northwest shore of the Dead Sea. Your guests will have a reserved entrance time and each receive their own headsets. The audio tour will last approximately forty-five minutes. Following their visit to the Natural History Museum, guests will be given maps, and able to amble through the heart of Balboa Park, a special place where you can experience San Diego’s natural beauty, over 13 museums, wonderful art and culture and stunning Spanish Revival architecture. Note: Price includes tour guide, deluxe motorcoach, admission to the Dead Sea Scrolls Exhibit, audio headsets, and free time at Balboa Park.

Register online at www.cns.org
“Take me out to the ballgame…” That’s all we need to hear to ensure that you and your guests enjoy a great day or evening with the San Diego Padres of the National League. Our professional staff will lead you to the stadium and direct you to your private picnic terrace. Watch your favorite Padres pitcher warm up in the bull pen located directly below your seats. Picnic Terrace includes a picnic-style menu and beverages (soda, bottled water and domestic beer), a service exclusive to the Picnic Terrace. Beverages will be available from the time gates open through the bottom of the 7th inning. Food will be served from one hour prior to the game until approximately one hour into the game. Each member of your group will receive a Padres visor to commemorate your event. It’s all part of the game, so be a part of it all! “PLAY BALL!”

Kick up your heels and join us for an evening of dining and dancing on board the M.V. Spirit of San Diego. The Spirit is a modern, sleek, cruise ship-style yacht with 360 degree picture window viewing. While enjoying a two-and-one-half hour cruise, you will be served a luxurious three course plated dinner, prepared freshly on board. While you are dining, the ship will be passing by such San Diego favorites as the graceful Coronado Bridge, the Star of India clipper ship, and the classic Hotel del Coronado. Each deck of the Spirit has its own high quality sound system and live entertainment or DJ for your dancing pleasure. Gaze at the beautiful sights of San Diego as the bustling city takes on the luster of city lights at night.

The Gaslamp Quarter of San Diego has been known by many names. It has been called Rabbitville, Flea Town, New Town San Diego, Davis’ Folly, Stingaree, Chinatown, S.O.B. (South of Broadway), and finally, The Gaslamp Quarter. This beautiful locale is made up of one of the most extensive collections of architecturally significant historic buildings in the country with 90 buildings listed on the National Register of Historic Buildings. Besides the fascinating architecture, the collection of interesting and colorful characters who built, lived and worked in the buildings is almost as extensive and certainly as interesting! Among them are William Heath Davis, Alonzo E. Horton, Wyatt Earp, Ah Quin, Police Chief Keno Wilson, and the notorious madam Ida Bailey.

The tour also highlights many of the best Victorian style commercial buildings constructed in San Diego during the years between the Civil War and World War I. Topping off your Walk Through History will be a stop at Ghirardelli Chocolate factory (which has been in business since 1852) for an old-fashioned, out-of-this-world ice cream sundae with you choice of toppings. Comfortable walking shoes and cameras are recommended.
<table>
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<tr>
<th>TOUR ID</th>
<th>TOUR NAME</th>
<th>PRICE</th>
<th>TIME</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>AT15</td>
<td>Sea World – Lunch with Shamu</td>
<td>$159</td>
<td>9:30 am - 3:30 pm</td>
<td>Sea World of California is 150 acres of fun, fish and other aquatic mysteries. The first and original of all Sea Worlds, this marine life and entertainment park is located on San Diego's beautiful Mission Bay, featuring five major shows and dozens of fascinating exhibits containing marine life from around the globe, including the world's largest live shark exhibit and the Penguin Encounter. Sea World’s star attraction is Shamu, the performing three-ton killer whale; however, other trained performers include sea lions, seals, bottlenose dolphins, and otters. Experience the slippery sensation of touching a dolphin, or the fun of feeding a sea lion or walrus! Your group will have lunch in Sea World’s newest attraction! Intimate dining at the “Shamu Close Up Pool,” with none other than Shamu as the star attraction! Having lunch within arms-reach of free-swimming 10,000 pound killer whales is certainly one to write home about! Your Sea World hosts for the afternoon are Shamu’s trainers. During your time with Shamu, the trainers offer fascinating information about some of our world’s most interesting mammals. Be sure to bring a camera, for photo opportunities abound! Lunch will be served buffet style, and throughout it all Shamu and friends are center stage, demonstrating a sampling of their spellbinding signature behaviors. And the jumps, dives and slides are mere feet from your tables!</td>
</tr>
<tr>
<td>AT16</td>
<td>Temecula Wine Tasting and Lunch</td>
<td>$95</td>
<td>9:30 am – 4:30 pm</td>
<td>While most of the world thinks that the only California wines are produced in the Northern California’s Sonoma and Napa regions, Southern California has some great wineries of it’s own. One hour north of San Diego County, nestled in the Rainbow Gap, is the beautiful wine-producing region of Temecula Valley. Temecula Valley is only twenty-two miles inland where one can see and feel the ocean’s influence. This area may include morning fog, gusty afternoon breezes, and cool clear nights that provide an ideal grape growing climate. Our first stop in Temecula Valley will be at one of the fifteen local wineries which include a tasting and an introduction to the centuries-old tradition of wine making. The last stop will be at the Callaway Coastal’s modern estate, where guests will enjoy a tour and a tasting at the beautiful winery. After the tasting, the tour will conclude with lunch on the vineyard grounds.</td>
</tr>
<tr>
<td>AT17</td>
<td>Hike, Bike, or Kayak – San Diego</td>
<td>$75</td>
<td>1:30 – 5:30 pm</td>
<td>While visiting Southern California, be sure and take advantage of some San Diego’s more scenic and diverse outdoor communities. An afternoon of outdoor fun and excitement awaits you! HIKE: As the sea rose and fell over the past million years, shelves or marine terraces were cut into the sandstone at various levels and other sediments were deposited on these shelves. The views combine wind bent trees, abstract sandstone formations, wildflowers, and the sea or lagoon below, all of which are constantly changing. Dramatic views are plentiful from areas of the hiking trails which parallel the bluff edge high above the sea and several viewing platforms have been built right at the bluff edge. They are excellent sites for observing the yearly migration of the Gray Whales as well as the year-round spectacle of dolphins. This hike is typically 2.5 hours long on beautiful beach trails. BIKE: La Jolla Plunge! Start from the top of Mount Soledad; ride down through the beautiful neighborhoods of La Jolla, Pacific Beach, and Mission Beach. Our guides will keep you at a pace suitable for an exciting downhill bike ride, while allowing the opportunity to take in the beautiful sights and sounds of San Diego. All bikes and equipment are included. KAYAK: A kayak tour of the La Jolla Sea Caves is a must while visiting San Diego. Witness the abundant wildlife and amazing views of La Jolla Cove with your guide who is an amateur naturalist. Not only can you kayak up to the caves at La Jolla Shores, but you may also witness dolphins swimming alongside you as well as Sea Lions, Seals, Leopard Sharks, Garibaldi, Sting Rays, Bat Rays, Brown Pelicans, and Cormorants to name a few.</td>
</tr>
</tbody>
</table>
Old Globe Theatre & Dinner
6:00 – 11:00 pm
$195 per person
Your evening will begin with dinner at The Prado Restaurant, one of the most beautiful restaurants in Balboa Park in The House of Hospitality. The unique décor blends the historical aspects of the House of Hospitality and whimsical accessories inspired by the Park museum collections. After dinner, your group will then stroll over to The Old Globe Theatre, for their performance of either Hamlet, Measure for Measure, or Two Gentlemen from Verona that are being performed on a rotating schedule as part of the 2007 Summer Shakespeare Festival. Rated one of the nation’s top regional theaters, the Old Globe continues to draw more than 300,000 people annually. The theatre’s featured play is sure to bring enjoyment for everyone who enjoys Shakespeare.

La Jolla Shopping and Lunch
9:30 am – 1:30 pm
$92 per person
La Jolla isn’t just another tourist town. “The Jewel,” is an apt description of this charming village with its many upscale boutiques, fine restaurants, art galleries, and charm of a Mediterranean isle. And the shopping in La Jolla is incomparable! Prospect Street & Girard Avenue are La Jolla’s answer to Beverly Hills’ Rodeo Drive. “Must See & Shop” places include stores such as: Mila, Corrines, Alcala Gallery and Bell Maison. Mixed in with the upscale boutiques are shops created for the shoppers who love to find a great bargain as well!

“Crown City” Walking Tour - Coronado
10:00 am – 2:00 pm
$45 per person
Rich in history, natural beauty and a charming ocean village atmosphere, Coronado is most deserving of it’s royal nickname, “The Crown City.” Bordering the Pacific Ocean, Glorietta Bay and San Diego Bay, this picturesque seaside city is linked to the Southern California coastline and the city of San Diego by the graceful and stately San Diego - Coronado Bridge, and to the north by a narrow strip of land known as the Silver Strand. Your knowledgeable guide will take you on a leisurely, narrated walking tour where you’ll learn that the Inn was once the home of John Spreckels, sugar king and San Diego benefactor. Then stroll down the boardwalk while you marvel at the waterfront mansions and see the house where The Wizard of Oz was written. Lastly, before the conclusion of your tour, you’ll hear how the North Island Naval Base was once a separate island before joining the existing peninsula. Comfortable walking shoes are recommended.
Save the Dates for Future Annual Meetings:

Orlando, FL  September 20 - 25, 2008
New Orleans, LA  October 24 - 29, 2009
San Francisco, CA  October 23 - 28, 2010
Washington, DC  October 1 - 6, 2011
The Congress of Neurological Surgeons gratefully acknowledges these sponsors for providing educational grants in support of the 2007 CNS Annual Meeting.

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Leica, Kyphon

As of 5/1/07.
Join us in San Diego, California, as the Congress of Neurological Surgeons advances neurosurgery with our most influential Annual Meeting yet. The Scientific Program at the 2007 CNS Annual Meeting is designed to help you navigate the dynamic field of neurosurgery and incorporate the latest technological breakthroughs into your practice.

Announcing the Joint Meeting with the Japanese Congress of Neurological Surgeons!

For More Information
info@1cns.org
www.cns.org
Toll Free: 877 517 1CNS
Phone: 847 240 2500

Meeting Highlights
• Introducing Integrated Medical Learning™ (IML) – Sessions during Monday, Tuesday and Wednesday GSS.
• Interactive Neurosurgical Forum and Select Abstracts Session – Monday, September 17.
• 3-D Live Cadaveric Demonstration of Surgical Approaches – Tuesday, September 18.
• NEW! Interactive Case Presentations – Thursday, September 20.
• Enhanced Digital Poster Format – with opportunities for electronic discussion.